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ART. I.—GREEK IN THE MIDDLE AGES.

Dissertationis de Græcis Medii Ævi Studiis Pars prior. De Græcis per Occidentem Studiis inde a Primo Medio Ævo usque ad Carolum Magnum. Scripsit FREDERICUS CRAMER. Sundiæ, 1849. In Bibliopoleo Lœffleriano ap. C. Hingst. 4to., pp. 44.

Dissertationis de Græcis Medii Ævi Studiis Pars altera. De Græcis per Occidentem Studiis inde a Carolo Magno usque ad Expeditiones in Terram Sanctam Susceptas. Scripsit FREDERICUS CRAMER. Sundiæ, 1853. In Bibliopoleo Lœffleriano ap. C. Hingst. 4to., pp. 65.

IT is somewhat remarkable that the investigation of the fortunes of Greek studies in Western Europe, during the long decline of learning, should have been delayed until the most recent years, and that, among the multitudes who have assiduously devoted themselves to classical philology and to mediæval antiquities, no one should have anticipated Herr Cramer in the discussion of this obscure but interesting topic. The examination of old manuscripts, and the determination of the dates of their execution, might have naturally stimulated such an inquiry; but the erudite and the ignorant, with rare exceptions, have been equally content to accept, as the starting point of their speculations about the modern history of Greek philology, the commonly received belief, that the knowledge of Greek became extinct in the west soon after the fall of the Western empire; and that it was not revived till the anxieties and agitations of the Byzantine court, preceding the conquest of Constantinople, dispersed through the more tranquil and flourishing cities of Western Europe, emigrant scholars and accomplished ambassadors, who never returned to the troubles they had left behind, but preferred the quiet honours of a Greek professorship in an Italian university, to the harassing distinctions of a sinking empire. It is to this period that Humphrey Hody

devoted his valuable researches; and numerous authors have continued his labours by special biographies or general notices. For the earlier centuries, we were still without adequate information or much assistance. The story of Petrarch and Boccaccio afforded a slight glimpse of the vitality of Greek in Calabria; and the inaccuracy of the vulgar belief was occasionally suggested to the student of mediæval history by incidental notices in the old chroniclers. The suspicion of error, however, never stimulated any scholar to determine carefully the extent of the misapprehension, or to trace the channels and course of Greek studies during the fluctuations and vicissitudes of the mediæval times. So far as we are aware, this attempt has been first deliberately made in the cautious and learned dissertations of Frederick Cramer; but so slowly does he proceed through the darkness and difficulties of the little known annals of those neglected centuries, and so little information has he been able to extract from his numerous authorities, that a third part is still required to complete his instructive essay, and one hundred and nine pages of loose type embrace all that he has discovered between the establishment of the Lombards in Italy, and the commencement of the crusades.

The history of Greek studies in Western Europe is an important branch of the inquiry into the rise of modern civilization, though overlooked by Guizot. So much of the culture, and even of the polity of the mediæval States was derived, directly or indirectly, from a Byzantine source, that the fortunes of the language in which they were perpetuated, and by which they were communicated, at least in part, cannot be prudently neglected. The critical researches of Jourdain into the age and origin of the Latin translations of Aristotle, first unsettled the belief in an exclusively Saracenic parentage for the scholastic philosophy, and directed attention to the smouldering embers of literature, still faintly flickering within the walls of Constantinople. Fauriel's instructive History of Provençal Poetry revealed other services, for which the mediæval world was indebted to the living influence of the Greek language. Both works have been consulted by Cramer, and they have given him still further aid by preparing the way for a change in the commonly received opinions, and for the ready acceptance of any discoveries which may be made by the diligence of himself and his fellow-labourers.

In an obscure inquiry like the present, it would be a ridiculous and unworthy affectation to pretend to greater learning than is supplied by our text, or to profess to seek from other quarters the information so patiently and carefully gleaned by the author of the treatise before us. On this occasion our task is a very humble one. We must be content to follow through the labyrinth of the beclouded past the thread which has been furnished to our hands; and shall only undertake to condense, elucidate, and disseminate

the views brought forward by Cramer. To most readers they will possess sufficient novelty without any additions of our own; and we cannot hope to do more than provide from our scanty stores a few data which have escaped his acute diligence, and to rearrange his facts in a somewhat different historical setting, better suited to the brevity of our remarks, and adapted to bring out the full significance of the influence of the Byzantine on the other European courts during the middle ages.

The title of Gibbon's great work—The History of the Decline and Fall of the Roman Empire—and the cursory manner in which he has despatched the later portions of the Byzantine annals, have tended to withdraw any further attention from that important branch of mediæval history, and to confirm the belief that the Turk found little but ignorance, apathy, vice, and barbarism to overthrow. Unquestionably, the later empire had dwindled away from its magnificent proportions under Constantine, and even under Justinian, and could boast of no Cicero, no Virgil, no Horace, no Livy, no Tacitus; it gave birth to neither great poets nor splendid historians; but its literary diligence and industrial activity were preserved with singular fidelity through all the changes of its increasing misfortunes. The country where Cardinal Bessarion and his compeers had been born and bred, certainly merited no contempt in comparison with the other nations of the fifteenth century.

In the decline and degradation of the Roman empire, its relations with the dismembered provinces which had sprung up into independent kingdoms, were never entirely interrupted. Indeed, the intimacy and frequency of the communications of Byzantium with the west, seemed to increase with the augmentation of its domestic miseries. The closeness of this connection may be intimated, without having recourse to any more recondite illustration, by the fact, that, whilst the Northmen and Danes were the terror of Novgorod and the Hanseatic towns, and were the brutal invaders of the coasts of England and France, they were already the disciplined body-guard of the emperors of the east. When the native population of England was dispersed by the Norman conquest, it was on the shores of the Bosphorus, and among their Varangian kinsmen, that many of them sought a refuge and employment. At a time when the extremities of Europe, the extremes of culture and barbarity, were so closely united, it would be an improbability to suppose that the influences of Byzantium, and of the Greek language and literature, were wholly inoperative on the rest of Europe. If the intercommunion were such as to make Thanes and Bersekers habitual denizens on the waters of the Golden Horn, the usages and civility of the enfeebled empire must have been extensively diffused by the Pisan, Genoese, Venetian, and Catalonian vessels which frequented that harbour, and

engrossed the commerce of the Euxine and the Levant. When bezants were the currency of trade, the language with which they were impressed might have been almost forgotten by monastic students, but must have been in some degree familiar to merchants, supercargoes, and many seamen.

These obvious considerations have not been entirely overlooked, but they are not urged by Cramer. Yet it is the ordinary transactions of life, much more than the extraordinary achievements of individuals, which regulate the general currents of civilization. The effects attributable to the commercial establishments and intercourse of the trading communities of Italy, Spain, and Germany, in the inner harbours of the Mediterranean, during the earlier half of the middle ages, have not been sufficiently appreciated, although much of the improvement of the west was introduced in this obscure manner.

The honours of an imperial alliance tempted the ambition or rewarded the audacity of the rude sovereigns of the wild hordes who had seized or encroached upon the domain of the Cæsars. Visigoths and Vandals had sought the hand of Byzantine princesses to justify or consolidate their usurpations, and the precedent was not forgotten by either the barbarous suitors or the astute parents of imperial brides. The policy of the emperors had reduced almost to the precision of a science, the conditions, the occasions, and the ceremonial of the extradition of the daughters of the purple; and their fears or their necessities frequently compelled them to practise in the courts of the outer barbarians the miserable lessons of diplomacy which had been learned for the guidance of their own. The whole code of matrimonial statesmanship was solemnly compiled and expounded by Constantine Porphyrogenitus, but he only recorded the procedure of preceding centuries of weakness and disgrace, and transmitted the record to his successors for their use.

These alliances, received and returned by Huns, Bulgarians, Serbs, Slovaks, Franks, Germans, Savoyards, and the despised usurpers of the rest of Europe, entertained a constant correspondence between the Teutonic kingdoms and the Byzantine empire, and were the occasion of continual embassies and diplomatic negotiations. Such relations must have kept alive some knowledge of the Greek language in the west, which must, however, have been introduced into foreign courts in the train of the fair princesses, whose personal or imaginary charms were the best defence of their tottering country.

The intercourse between the Latin and Greek churches, sometimes conducted in the spirit of conciliation, more frequently confined to angry contentions and polemic disputations, was prolonged without interruption until the patriarchs of Constantinople subsided into the convenient instruments of Ottoman domination.

The same currents which transported the later provisions of the canon law to the régime of the papacy and the patrimony of St. Peter, must have perpetuated in the west some knowledge, however faint, of the Greek tongue. A barbarous Greek it may have been, which was thus disseminated. The vernacular speech of Byzantine courtiers, and of the caloyers of Mount Athos and the Ægean islands, may have exhibited many corruptions offensive to the too Attic ears of modern philologists, though Cramer revives the compliment paid by Philelphus to the elegant pronunciation of the noble ladies of Constantinople.* But it was still Greek, the legitimate descendant of the language of Homer and the tragedians, and deviated less from a pure Hellenic standard than the Æolic of Sappho and Corinna, and the patois of Macedonians, Bœotians, Megarians, and Spartans, diverged from the elegancies and precision of Attic speech. It is one of the most surprising incidents in the long series of Byzantine literature, that the forms and characteristics of the ancient language should so long have survived the taste and grace of antiquity; and that a people so versatile and facile to change in its youth, should have been so tenacious in its old age. It is only in the provincial, or in the latest authors, that the progress of the popular corruptions of the Greek tongue can be discerned. Moreover, even in its worst types, the Greek diverged but slightly from the Alexandrine standard. Some customary abbreviations, a few idiomatic novelties, more numerous changes in the vocabulary, the abandonment of some earlier locutions, constituted the principal differences of the degenerate speech. These were trivial aberrations, and scarcely impaired the identity of the language. If it was changed, nothing could more resemble its former self; "*nihil hoc simili est similius.*" The conservative genius of the Byzantine rule extended its influence to the speech as well as to the other institutions of the people, and succeeded so far in perpetuating its essential uniformity, that it is no difficult task for one familiar with Sophocles, Thucydides, and Aristophanes, to apply his knowledge to the perusal of the advertisements of Smyrna figs, Zante currants, or the marine list in a modern Athenian gazette.

The corruptions of the Greek furnish no reason for denying its perpetuation. We might as well deny the preservation of the Latin during the middle ages by ecclesiastical services and constitutions, and by crabbed annalists, because the monkish latinity does not compare favourably with the classic purity of Cicero and Livy, as reject the influence of theological relations in prolonging in Western, the knowledge of the language of Eastern Europe, because the spoken tongue of the scholastics and archimandrites of

* Cramer, cap. xv., ps. ii., p. 12.

the Byzantine domain might have grated harshly on the delicate ears of an Athenian audience.

The political establishments of the Eastern empire, in Italy and in Africa, must not be omitted from this enumeration of the means by which the knowledge of Greek was kept alive in the west. The Greeks maintained a waning jurisdiction in Africa till the commencement of the eighth century. The exarchate of Ravenna prolonged their dominion in Northern Italy till the middle of that century, and was finally extinguished by the Lombard Lintprands only a score of years before the kingdom of Lombardy was itself erased from the map of Europe, by the usurpations of Charlemagne. In Southern Italy, the grand catapan—from whom the English title of captain is derived—and the archbishop of Bari, maintained the usages, institutions, authority, and language of Greece, for nearly three hundred years after the conquests of Charlemagne, and scarcely retired before the brilliant aggressions of the sons of Tancred D'Hauteville. But, after the Greek emperors had been driven from their last foothold in the west, the Greek continued to be a living language, amid the mountains and in the plains of Calabria; and was still spoken there when Petrarch and Boccaccio conferred its classical pre-eminence on the Tuscan dialect.*

A more suitable opportunity will probably occur for speaking of the influence of Marseilles, and the early Greek colonies in the south of France, in diffusing through the adjacent parts of Europe a greater knowledge of Greek during the middle ages, than has usually been ascribed to that period.

The considerations, so far presented, supply no direct testimony to the continued study of Greek in Western Europe, during mediæval times, but only to the fact of its partial preservation, and presumptive evidence that such study could not have been altogether intermitted. The presumptions are, indeed, singularly strong, and might suffice, without other testimony, to invalidate the current opinions on the subject. It is impossible to conceive that the language of Greece was altogether unknown to the populations of the Teutonic kingdoms, when these were at all times connected with the Greek empire by military combinations, by matrimonial alliances, by diplomatic intercourse, by ecclesiastical complications, by commercial enterprises, by colonial establishments, by literary or religious pilgrimages through the Byzantine provinces, and by the maintenance of the Greek polity at important points of the territory of the west. Still, this is merely a

* Cramer, cap. xv., ps. ii., pp. 5–13, specifies, as the five causes which encouraged Greek studies in the monasteries, during the eighth and ninth centuries—The contact between the western and eastern empires; the contests between the Roman and Greek churches; commerce and trade; matrimonial alliances; and travels undertaken in the pursuit of learning.

presumption: it is a presumption, however, which will prepare us for a correct estimate of the positive data gathered from incidental notices in the mediæval records; and may justify us in drawing from them bolder and broader inferences than M. Cramer has, so far, ventured to entertain.

When Augustus consolidated his power, and established the dynasty of the Cæsars on the imperial throne of Rome, by the victory at Actium, the Greek might be regarded as almost the universal language of the civilized world. The Latin had no such pretensions; it was the language of state, of law, and of a local literature; but Greek was the cosmopolitan speech, cultivated, spoken, and understood, from the eternal snows of the Hindoo Koosh and the Bactrian kingdom to the mouth of the Tagus. It was the fashionable idiom of the polite and the learned even at Rome, and wherever the manners of Rome prevailed. In it, emperors composed their memoirs; elegant gentlemen conducted their correspondence and conversation; and literary men transmitted their ideas. It might then have been said, with large tacit reservations, that "the whole earth was of one language and one speech." This uniformity of the vehicle of oral and written communication, was an admirably ordained provision for the speedy and successful dissemination of Christianity, whose promulgation coincided with this ascendancy of one idiom, and with the establishment of universal peace. The Greek language thus became, in a very important manner, one of the fundamental agencies of the Christian religion.* It was the tongue chiefly employed by the apostles and the evangelists; and the phraseology of St. Paul divides into only two classes, Jews and Greeks, the multitudes of every nation under heaven to whom the gospel was addressed. So general at that time was the knowledge and usage of Greek, that even the terms Greek and Gentile might be employed as synonymous without any apprehension of serious confusion.

It is not easy to determine the stages or dates of the decline of Greek studies. They were not destined to prolong their pre-eminence: their universal honour was to be succeeded by an almost universal oblivion.

> "Longi pœnas Fortuna favoris
> Exigit a misero, quæ tanto pondere famæ
> Res premit adversas, fatisque prioribus urget."†

In the time of the Antonines, as appears from the Attic Nights of Aulus Gellius, and from the writings of Marcus Aurelius and his contemporaries, it was still in general favour and employment. But the storms of succeeding times, the endless civil wars, the

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* Cramer, ps. i., cap. ii., p. 3.

† Lucan. Pharsal., viii., 21–3.

barbarian inroads, and the barbarian auxiliaries, with the almost habitual elevation of rude barbarian soldiers to the high offices of state, and to the throne of the Cæsars, must have been as fatal to Greek culture, as to the purity of the Latin language and the literature of the empire. As the Parthians and Persians encroached upon the eastern empire, and the Franks and other Germans on the northern and western frontier, the limits of Greek study must have been rapidly contracted.

During this period, however, and until the permanent settlement of the Northern hordes on the imperial soil, Greek was still cultivated with assiduity by occasional scholars, and its study was encouraged by the ardour and polemics of the Latin fathers. Amongst the Roman doctors, M. Cramer commemorates the names and the services of Clemens Romanus, Irenæus, Hippolytus, Caius, Tertullian, and Saint Jerome, as late as the fourth century. Saint Augustine furnishes in his own person the earliest indication of the decline of Greek studies in the western church. The difficulties which he experienced in acquiring the Greek language, inspired him with disgust; and he never overcame his repugnance sufficiently to attain to any proficiency in its mysteries. But, in the time of Saint Augustine, Greek was still regularly taught in the schools of the west. Ausonius has commemorated the virtues and attainments of the professors of his alma mater—the College of Bourdeaux, (*Academia Burdigalensis*)—in a series of complimentary odes, valuable for the insight into the education of the day afforded by them, however vague the rhetoric of undiscriminating flattery may be. Seven teachers of Greek in this college are recipients of the eulogy of Ausonius, though they did not, apparently, hold office there all at the same time; and, in addition to these "seven sages," he praises the rhetorician, Alethius, for his brilliant accomplishments in either tongue.

> "Palmæ forensis et Camœnarum decus,
> Exemplar unum in litteris,
> Quas aut Athenis docta colit Græcia,
> Aut Roma per Latium colit."*

It is impossible to gauge with any accuracy the contents of hyperbolical laudation, but the general attainments of scholars must have been meagre, if the extravagance of adulation could find in the extensive knowledge of Latin and Greek sufficient cause for signalizing Alethius as a solitary paragon of learning. Nor is our estimate of the Greek lore of the erudite heightened by the admissions of Ausonius, and his confession that he had made no progress in the study of the language.

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* Auson. Commem. Proff. Burdigal., ii., vv. 6–10.

"Sedulum cunctis studium docendi;
Fructus exilis, tenuisque sermo;
Sed quia nostro docuere in ævo,
Commemorandi.

Tertius horum mihi non magister;
Cæteri primis docuere in annis,
Ne forem vocum rudis, aut loquendi,
Sed sine cultu:

Obstitit nostræ quia, credo, mentis
Tardior sensus, neque disciplinis
Appulit Græcis puerilis ævi
Noxius error."*

Notwithstanding this open confession of failure, Ausonius, like some of his more illiterate successors, is peculiarly fond of interweaving words, verses, and passages of Greek into his poems,† and has even perpetrated an epigrammatic distich in Greek, which contains no point, and little of anything else besides the Greek characters, and the outward semblance of metre. It is simply a brief invitation to a friend, which may be thus rendered:

"Dear Paul, poet and preacher! Ausonius, consul of Rome, sends Greeting and compliments. Come! hasten to visit your friends."‡

The testimony of Ausonius thus demonstrates the regular instruction in Greek in the Gallic academies of the fourth century, but it also concurs with the example of Saint Augustine, in suggesting the belief, that the cultivation of the language was declining, and was not likely to be successfully cultivated for more than a single generation longer. It may thus restrict very much the interpretation to be given to M. Cramer's remark, that the cultivation of Greek was preserved by the teachers of grammar in the academies.§ These institutions in Gaul did, indeed, suffer severely from the barbarians beyond the Rhine,‖ and their condition might be less flourishing in that exposed country than elsewhere. But the fifth century opened with political convulsions and rude shocks, which must have crushed literary pursuits everywhere. The Goths, Alans, Suevi, Vandals, Visigoths, and Burgundians, overran Gaul; the great wars of Alaric and Stelicho ensued; the imperial treasuries were drained, and the salaries of professors

* Commem. Proff. Burdigal., viii., vv. 5–16. M. Cramer overlooks the testimony of Ausonius.

† See especially Epistles xii., xiv. The former is a mere cento of quotations.

‡ Epist. xiii. Αὐσόνιος Παύλῳ.

Ῥωμαίων ὕπατος ἀρεταλόγῳ ἠδὲ ποιητῇ
Αὐσόνιος Παύλῳ· σπεῦδε φίλους ἰδέειν.

§ Cramer, ps. i., p. 7.

‖ Eumenii pro Instaurandis Scholis Oratio. S. Salvianus. De Gubernat. Dei. lib. vi., c. xiii.

were suspended or withdrawn; the colleges declined; and thenceforward, until the reign of Charlemagne, and, indeed, until the foundation of the law school of Bologna and the Sorbonne at Paris, it is an arduous task to trace the faint indications of literature amid the dense obscurity of the times.

The increasing ascendancy of the Latin church was undoubtedly one of the agencies of the decay of Greek studies, and there is much truth in the pointed remark of Cramer, that the supremacy of the Latin language was proportionate to the extension of the Papal authority.* But the amplification of the jurisdiction of the popes was rather an accompaniment than a principal cause of the disregard of Greek, at least in the earlier part of the middle ages. The political severance of the eastern and western empires, was the prime cause of the ecclesiastical disunion; and this double rupture necessarily led to the discredit of Greek in the west, as well as to the speedy extinction of Latin in the east. The Latin had been the language of law and of state at Constantinople, but it was becoming a rare accomplishment, and had already conceded half its honours to its precursor and rival, in the reign of Justinian, in whose latter years, and under whose immediate successors, it sunk rapidly into oblivion. If the disuse of Greek in Italy and the neighbouring provinces, was attributable to the deliberate efforts of the Roman tiara, how shall we explain the abandonment of Latin in the Byzantine court, without the introduction of a glaring inconsistency into our explanations? Each tongue languished in the respective divisions of the empire, under the operation of natural and similar causes. As the communion of interests between the two members of the former universal monarchy diminished, each neglected the language of the other, which daily lost more and more of its practical importance. Moreover, the circumstances of those ages, especially in the west, with unnumbered tribes of barbarians inundating the ruins of civilization, and founding new kingdoms, alien in spirit to the Roman dominion, and entirely foreign to Greek culture, are sufficient to account for the disregard of the Greek language and literature, without imagining more recondite and less efficient influences.

Despite, however, of the unfavourable condition of affairs, the knowledge of the Greek might and would have been extensively preserved, if the necessities of the Latin church had required its habitual employment. Its services declined considerably in importance after Christianity had become coextensive with Greek and Roman civilization; after the demand for Christian apologies to the Greeks had been satisfied, and Hellenic paganism had sunk

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* Cramer, ps. i., cap. i., p. i.: "Quo major enim erat papalis potentia, eo magis una latina regnabat lingua."

into contempt; and after the western churches had received, in the vulgate, an authorized version of the Scriptures, and had been accommodated with a Latin liturgy, and Latin translations of Greek patristic literature.*

In a later period of the middle ages, the popes and the hierarchy exhibited, at times, a deliberate hostility to the Greek tongue and the monuments of Greek genius. This movement was inaugurated by the ascetic opposition of Gregory the Great to profane literature, and to the language and philosophy of Greece in particular; though Gregory's residence at Constantinople must have imbued him with some slight tincture of Greek, notwithstanding his own declarations to the contrary.† The feeling of animosity was exacerbated by the multitudinous heresies with which the Greek language swarmed;‡ it was still further inflamed by the acrimonious polemics of the iconoclastic controversy; its fires were constantly fanned by the schism between the Greek and Latin churches, and the contentions for ecclesiastical supremacy in the frontier provinces of both empires.§ The spirit generated by these influences prolonged its existence throughout the whole of the middle ages, with unequal intensity at various times; and it manifested its persistent vitality at their close in the persecution of Reuchlin and the Hellenists, and in those memorable transactions which provoked the merciless ridicule of the *Epistolæ Obscurorum Virorum*. As some apology for the occasional virulence of this opposition to the Greek, it must be noted that a similar warfare, actuated by similar zeal for religion, was waged with limited success by the rabbis and the sanhedrim of Spain.‖

But it is unjust to attribute the decay of Greek studies to malice prepense on the part of the Latin church. The decline was gradual and spontaneous. Greek phrases and Greek canticles long continued to be employed in the Roman service, and remnants of them are still found in the Ordo Romanus. Certain parts of the liturgy were habitually celebrated on solemn occasions in both Latin and Greek. The usage of the latter language was familiar to the Bohemian churches, and apparently survived all vicissitudes in the celebrated monastery of Saint Gall.¶ It was also provided, that, if the emperor of the east should visit Rome,

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* Cramer, ps. i., cap. ii., p. 6.

† Cramer, ps. i., cap. viii., p. 24. Ozanam, Des Ecoles en Italie, &c., § ii. Œuvres, vol. ii., p. 382–3.

‡ Cramer, ps. i., cap. iii., p. 7. The case of Vilgard, the grammarian, affords a singular illustration of the connection supposed to exist between classical studies and heretical opinions in the eleventh century. Ozanam, Des Ecoles, &c., § i. Œuvres, vol. ii., p. 362.

§ Cramer, ps. ii., cap. xv., pp. 6–10.

‖ Cramer, ps. i., cap. iii., pp. 8–9. Brucker, Hist. Crit. Phil., tom. ii., pp. 850–6.

¶ Cramer, ps. ii., cap. xv., pp. 6–10. Ps. i., cap. ii., p. 6.

he was to be welcomed by a choir with Hebrew, Greek, and Latin songs.*

If the western church had deliberately discountenanced the study of Greek, as the tenor of M. Cramer's remarks implies, there would be great reason to be amazed at the diligent anxiety with which Cassiodorus supplied Greek manuscripts to the monastery endowed by him at Squillace, and at the earnestness with which he commended to his monks the study of the Greek text of the sacred Scriptures.† There is no record to inform us what use they made of the donation, or what respect they paid to the advice. Notwithstanding the enlightened encouragement of schools and literature by Theodoric, learning was everywhere dying out during the sixth century; and Greek naturally shared the fate of other studies. Cassiodorus, and his contemporaries, Eunodius, Dionysius Exiguus, and Boethius, were nearly the last of the western scholars; though there is other evidence than their own example of the still struggling prosecution of Greek studies, and of their assiduous cultivation by members of the royal family of the Ostrogoths.

The rule of the great Theodoric had alleviated the miseries, renovated the agriculture, renewed the commerce and industry, revived the prosperity, and restored the population of Italy: it had also disseminated the arts, and, in some measure, the luxuries of civilization amongst the conterminous barbarians.‡ The scanty seeds of literary activity germinated afresh under the beneficent influence of that illustrious potentate. But his dynasty was of brief duration; and all that had been achieved in his own long reign speedily vanished amid the disasters which overwhelmed his successors, and the equal misfortunes which again desolated Italy under the government of the generals and viceroys of Justinian. The re-establishment, however, of the imperial authority in Italy and Africa, tended to keep alive some acquaintance with the Greek in the provinces of the Latin tongue; and hence we find, during this period, Roman authors composing in Greek, and Greek authors employing the Latin.§ If the conjecture, recently hazarded, can be sustained, that Jornandes, or Jordanes, the historian of the Goths, lived and wrote at Constantinople, and was never bishop of Ravenna, according to the customary supposition, it would furnish a singular instance of a literary Goth, devoting himself to Greek letters, in the capital of his conquerors, after the

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* Bede apud Ozanam, Des Ecoles, &c., § i. Œuvres, vol. ii., p. 360.

† Cramer, ps. i., cap. vii., pp. 20–2, and his references to Cassiodorus. Cramer has gathered nearly all the information which Cassiodorus can be made to afford, but he has overlooked one very important passage: Cassiod. De Inst. Div. Lit., cap. xiv. It is too long to be transcribed. It fully confirms the inferences drawn from the other passages cited from that author.

‡ Cassiod. Var. passim. Sartorius, L'Italie sur le Gouvernement des Goths.

§ Cramer, ps. i., cap. viii., p. 18.

overthrow of his country and the dispersion of his people.* But neither the supposition nor the date would harmonize readily with the declarations contained in the text of Jornandes.† But it is reasonable to suppose, from the expression of Jornandes himself, that he was acquainted with Greek, and familiar with Greek authors.‡

After the overthrow of the Ostrogothic kingdom in Italy, the salaries of professors, which had been frequently suspended before, ceased altogether, and the fortunes of education were for centuries left to the precarious efforts of ecclesiastic schools, monastic instruction, and private teachers. However faint and feeble may have been, in some ages, the literary results of these means, they were never altogether intermitted, but, in the midst of civil discords and foreign invasions, preserved to happier times the germs of literary culture and of classical learning. "At the end of the sixth century, Virgil was still habitually read in the forum of Trajan at Rome: on this ground, contemporary poets recited their works, and the senate decreed a carpet of cloth of gold to the victor in these literary combats."§ The same spirit which crowned Petrarch with laurel, already displayed itself at the commencement of the middle ages.

Gregory the Great, whose name has been often vituperated as the enemy of learning, established two pontifical schools for choristers, one in the basilica of Saint Peter's, the other in the palace of the Lateran.‖ In these schools, music and singing were not the only branches of study; polite letters were also taught, and the institutions of Gregory were afterwards imitated in the palatine schools of Charlemagne and subsequent princes.

The example of Gregory was followed in the ecclesiastical establishments of all the principal towns of Christendom. Archiepiscopal, episcopal, and parochial schools were scattered over the face of Europe, and were frequented by pupils during the darkest night of the middle ages. Scanty, indeed, may sometimes have been the amount of instruction afforded; but, scanty as it was, it always very far exceeded in degree and quality the character of the education usually ascribed to those times.

In the monasteries, especially in those of the Benedictine order, which long continued to be the most numerous and important, literary studies and the education of the young were never neglected.

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* Cramer, ps. i., cap, viii., p 18.

† Vide Clinton, Fasti Romani, ad ann. A.D. 552, where these passages are collected.

‡ "Ad quos," his recollections of Cassiodorus, "nonnulla ex historiis Græcis ac Latinis addidi convenientia." Jornandis Præfatio ad Castalium.

§ Ozanam, des Ecoles, &c., § i., p. 358.

‖ Ozanam, des Ecoles, &c., § ii., p. 383.

But, besides the services rendered by the clerical body, similar services, of equal magnitude, were due to the private teachers, who continued to hold their schools throughout the long course of the middle ages. "These independent school-masters were the true heirs of the grammarians and rhetoricians of antiquity; but, deprived of the endowments granted by the Roman law, and which had perished in the ruins of the empire, they were reduced to the necessity of bargaining with their pupils, and of making merchandise of their instructions."* But these teachers were not merely the representatives of the Roman academies, they were also the progenitors of the mediæval universities; and little more was requisite to give life to the collegiate system than the measures of Charlemagne and the ordinances of Lothaire. The germs were already vigorous; they required only the sunshine of royal or municipal favour, to put forth branches and bear rich blossoms and abundant fruit. The emperor Lothaire established, or reorganized schools, to which the poor as well as the rich were to be admitted, at Pavia, Ivrea, Turin, Cremona, Florence, Fermo, Verona, Vicenza, and Friuli.† There was no period when there was not some provision, adequate or inadequate, for the education of the young, and for institution in literary pursuits. So successful, indeed, were the appliances then in vogue, that popular songs and popular treatises continued to be written in Latin, and that the harangues in the popular assemblies were also in Latin in the stormy debates between the contending factions of Guelphs and Ghibellines.‡

If, contrary to the general opinion, education was thus sedulously cultivated in the middle ages, in ecclesiastical, monastic, private, and palatine schools, there would be reason to suspect that the study of Greek could not be altogether neglected. Nor was it. "Those persons are egregiously mistaken, who imagine that the cultivation of Greek literature was resuscitated as if from the dead, in Italy, about the middle of the fifteenth century."§ So far from this being the case, it is impossible to point to any period when Greek was not sedulously cultivated, if not very successfully, in some part of Europe, during those ages when it is supposed to have sunk into complete oblivion. In Italy, and elsewhere, where the Benedictine, but especially where the Basilian monks were established, the knowledge of the Greek was preserved by the usages of the monasteries. The Basilians were principally settled in Sicily and Southern Italy, and were themselves natives of Greece. But there was also a Basilian monastery at Rome,

* Ozanam, Des Ecoles, &c., § i. Œuvres, vol. ii., p. 366. Cramer, ps. i., cap. iii., p. 7.
† Ozanam, Des Ecoles, &c., § ii. Œuvres, vol. ii., p. 388–9.
‡ Ozanam, Des Ecoles, &c., § iii. Œuvres, vol. ii., p. 426; pp. 421–4.
§ Cramer, ps. i., cap. ix., p. 27.

founded by Pope Stephen II.,* and dedicated to St. Denis, which seems to have been assigned to the Greeks, as it is termed *Schola Græcorum*. From the year A. D. 760, Greek appears to have been regularly studied in this convent, and in that of Saint Sylvester, in compliance with an ordinance of Pope Paul I., who directed the cultivation of that language for the purpose of supplying ambassadors for the diplomatic intercourse between the east and the west. In the ninth century, Popes Stephen IV. and Leo IV. established Greek monks at Rome and in Southern Italy; and for some time the monastery of Saint Andrews, at Rome, was occupied by Greeks.† That the Greek was spoken in these Basilian convents, even down to the fifteenth century, is proved by a royal edict, issued in 1409, for the establishment of schools for these Greek monks, to prevent the further depravation of the Greek language by intercourse with the Latins.‡

The Benedictine monastery at Casino included Greek as well as Latin monks; and the mass was celebrated once a year, in full choir, in both Greek and Latin. When this illustrious monastery was overthrown by the Saracens in 1388, they put to death Berthier, the abbot, a cadet of the royal family of France, who is said to have been skilled in both medicine and Greek, two branches of study very intimately connected together in the west throughout the middle ages.§

In the south of France, through the influence of Marseilles and its dependent Greek colonies, the Greek long continued to be the common speech of the people, and even of the rural population; nor was it till the ninth century that the institutions and the inspiration of Greece were effaced by the rising energy of a nascent civilization.‖ It was not till the end of the sixth century that the habitual use of Greek ceased in the southern parts of France, and then it contributed largely to the vocabulary of the incipient Provençal.¶ M. Fauriel, a most competent authority, who has diligently investigated the origin of the language of the troubadours, remarks that "if history had preserved no record of the Greek populations who so long flourished in the south of Gaul, their existence might have been recognized by the numerous remains of the Greek embalmed in the Provençal."** It is impossible to peruse that learned writer's history of Provençal poetry,

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* Pope Stephen III. Pope Stephen II. died before consecration. Stephen IV. is, more correctly, Stephen V.

† Cramer, ps. i., cap. ix., pp. 26–27.

‡ "Ne Græca liugua, frequenti commercio cum Latinis monachis depravata, magis laberetur."

§ Cramer, ps. i., cap. ix., p. 28–9.

‖ Fauriel, Hist. Poesie Provençale, cap. v., vol. i., p. 164; chap. iii., vol. i., p. 63–5.

¶ Fauriel, Hist. Poesie Provençale, cap. vi., vol. i., p. 193, 197.

** Hist. Poesie Provençale, cap. vi., vol. i., p. 199.

or any summary, however brief, of the epic compositions of the middle ages, without noting the extent to which the epic literature of Greece had penetrated among the Teutonic conquerors of the soil, and without detecting the continual influence of Homer, and even of the Cyclic poets, upon the popular legends and songs of the barbarians. Nor is this surprising, when it is remembered that one of the most authentic editions of the Homeric poems was due to the city of Marseilles.

But, renouncing the further development of these general considerations, we will endeavour to adhere more closely to the footsteps of M. Cramer, and to select from the special instances enumerated by him, more particular evidence of the perpetuation of Greek studies in the west, throughout the middle ages. Unfortunately, there is neither method nor regularity in his exposition. His mode of treating his subject is entirely changed in passing from the first to the second divisions of his essay. There is, throughout, a disorderly accumulation of facts, whose value is very imperfectly appreciated; and this disorder by no means exhibits any uniform type. We must pick our way daintily, and with the constant apprehension of stumbling, over the rugged path which he has marked out for our journey.

M. Cramer's treatise, as already remarked, embraces prospectively three divisions: from the decline of the western empire to the reign of Charlemagne; from the accession of Charlemagne to the crusades; and from the commencement of the crusades to the revival of letters about the period of the conquest of Constantinople by the Turks. Of these three eras, the last is still untouched, and our attention is consequently confined to the first two. During these periods, M. Cramer endeavours to indicate, with something like chronological sequence, and with some attempt at geographical order, the instances of Greek attainments, before the expeditions for the recovery of the Holy Land from the hands of the Saracens reopened Greece and the east to the contemplation of the western nations. But the lines of demarcation are drawn with an indistinct and wavering pencil; nor is it easy to distinguish sharply between different ages so similar to each other, and which separately present so little to be commemorated; or between different countries so intimately and continually connected together by ecclesiastical relations and political complications. We cannot undertake to be more systematic or discriminating than our textbook, in gleaning from it the more important evidences of Greek pursuits which it furnishes to our hands, or in interweaving with them such other notices, derived from other quarters, as confirm the position that the study of Greek continued uninterrupted in the west, from the days of the elder Cato down to our own times. It would be not merely tedious, but a labour utterly disproportionate to the value of the result, to rearrange the materials provided by

the essay before us, and to affect, in a brief notice, the systematic exposition which has been disregarded in the formal treatise. We prefer to follow the footsteps of our guide, with little deviation from the path trodden by him; and shall imitate him in dividing the whole period under discussion into two parts—the ages before and the ages after Charlemagne.

It is unnecessary to repeat, that, in Italy, the Greek was cultivated during the whole of the middle ages, and was a living tongue in the southern portion of the peninsula, and in Sicily.

In Southern Gaul, Greek was employed in the sixth century in the regular services of the church. Cæsarius, bishop of Arles, who died about the middle of this century, compelled the lay multitude, as well as the clergy, to chant the proses and antiphonies, not only in Latin, but also in Greek. The last example of the use of Greek in the ordinary church service, occurred as late as the tenth century, at the monastery of Saint Martial, in Aquitaine. In the middle of the sixth century, Greek was taught in the private schools at Lyons, Vienne, and Clermont. Chilperic I. pretended to dabble in Greek letters; other Frankish kings, also, possessed an acquaintance with Greek, which, however slight, would not have been a subject of pride or ostentation unless the language had been still cultivated; and, indeed, the Greek was still in vulgar use among the rustic population in the ninth and tenth centuries.*

In Spain, in the seventh century, Isidore of Seville was distinguished by his devotion to Latin and Greek studies; but his own remarkable erudition did not prevent him from discountenancing such pursuits, from the apprehension that they might foster heretical opinions. Other Greek scholars were to be found amongst the friends and contemporaries of Isidore. His brother Leander was a companion of Gregory the Great during his long residence at Constantinople. Braulio, bishop of Saragossa, and Julian, bishop of Toledo, were also acquainted with Greek; and in the same age, large libraries were established in Spain, to which copious additions were brought by Donatus from Africa, Martinus of Braga from the east, and John, bishop of Gerona, from Constantinople. But the discouragement of profane learning by Isidore, was more influential than his example, or the literary treasures with which Spain was then enriched; and the Saracenic invasion arrested for ages intellectual avocations, and confined the attention of the Spanish Goths to the defence of their fastnesses in the Asturian mountains, and to the ultimate reconquest of their lost domain.

Still, even the Mahometan supremacy in Grenada did not altogether extirpate Greek studies. In the generation before Isidore,

* Cramer, ps. i., chap. x., pp. 33–5.

John of Santarem, a Goth by birth, had spent twenty-seven years at Constantinople, in the assiduous prosecution of Greek and Latin literature. In the century after Isidore's death, Julian Lucas, a Greek, born in the literary city of Thessalonica, was deacon at Toledo. (A. D. 717.)*

It is scarcely necessary to observe that the interrupted studies of the Gothic and native population of Spain, were speedily resumed by the Saracenic conquerors, in their magnificent colleges, and by their Jewish subjects; for the services rendered by the scholars of both nations, in preserving, propagating, and extending the science and philosophy of Greece, are too familiarly known to require fresh illustration. In the elaborate work of Jourdain on the Latin translations of Aristotle, it is definitely settled that the principal knowledge of the works of the great peripatetic, before the taking of Constantinople by the crusaders, was derived from the Arabians and Jews of Spain.†

It is not a little singular that Britain—*Ultima Thule*—so distant from the Greek empire, and always so remote from Greek civilization, should afford the most numerous and the most satisfactory evidences of the persistent cultivation of Greek. We omitted to mention in the proper place—what M. Cramer has overlooked altogether—that Pope Paul I. received into the school of the Lateran, French monks, and transmitted to Pepin le Bref an antiphonary, with Greek treatises on grammar and geometry.‡ It would have been a strange present if the Greek had been unintelligible at either the pontifical or the Frankish court. It was through the same papal instrumentality that the knowledge of Greek was revived in Britain, or introduced into the island. Gregory the Great had initiated the conversion of the Anglo-Saxons to Christianity by the missionary labours of Augustine, first archbishop of Canterbury. The work was continued by subsequent pontiffs, and, in the latter part of the seventh century, Pope Vitalian despatched Theodore, afterwards archbishop of Canterbury, and Adrian the African, to diffuse more widely the knowledge of the gospel among the British populations.§ Adrian had been conjoined with Theodore, because the orthodoxy of the latter was suspected, as being by birth a Greek, from the city of Tarsus, in Cilicia. Theodore is expressly stated by Bede to have been conversant with the secular and divine learning of Greece and Rome. William of Malmesbury honours them both as consummate scholars, and intimates that they were attended by other

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* Cramer, ps. i., cap. xi., pp. 36–8.

† Jourdain, Recherches Critiques, &c. Conclusions, pp. 209–11.

‡ Cramer, ps. i., cap. xiii., p. 43. Ozanam, Des Ecoles, &c., § ii., vol. ii., p. 384.

§ Cramer ascribes this mission to Gregory the Great, who died more than sixty years before.

priests, both Greek and Latin. "Were not the subject already trite," says he, "I should willingly record what light they shed upon the Britons; how, on one side, the Greeks, and on the other the Latins, emulously contributed their knowledge to the public stock, and made this island, once the nurse of tyrants, the constant residence of philosophy."*

Thus, in the middle of the seventh century, was founded, by Greek instructors, the great school of Canterbury, whence proceeded many teachers and many schools to enlighten other parts of England. From this time onward, the succession of schools, and even of Greek scholars, descends almost unbroken to the times of Linacer; and the knowledge of the Greek was often as general in certain British monasteries, as the knowledge of Latin was elsewhere.

Theodore is said to have brought with him to England sundry Greek manuscripts, among which the writings of Josephus and the poems of Homer are enumerated. Aldhelm, abbot of Malmesbury in 671, bishop of Sherburn in 705, a pupil of Theodore in the school of Canterbury, a student of Greek, rhetoric, and logic under Albinus, abbot of Saint Augustine's, a student of Greek and Latin under Maidulphus, founder of the Malmesbury monastery, wrote a narrative of the acts of Andrew in Anglo-Saxon, the materials of which he procured from a spurious Greek treatise.

Albinus, another disciple of Theodore, was acquainted with Greek; and a third alumnus of the same school, Tobias, who died in 725, was as familiar with the Greek and Latin as with his own tongue. M. Cramer infers from the extensive travels of Saint Columban in the Byzantine provinces and the Holy Land, that the Greek was habitually and readily employed by the British monks; and he concludes, from the representations of the venerable Bede, that it was used by many of them as a living language.

The condition of Britain after the death of Bede explains sufficiently the gradual decline of Greek studies; but they do not appear to have been entirely intermitted, for the subsequent evidences of Greek scholarship are only intelligible on the supposition of their continued preservation in those monasteries which were sheltered from the ravages of civil war and the outrages of the Danes.

No testimonies are produced to sustain M. Cramer's allegation, that the study of Greek extended during these centuries to Ireland, but the position is probable in itself, and in entire conformity with the diligence and success with which literary pursuits were then and there cherished. We are informed by Bede, that in the middle of the seventh century, "the Irish most liberally welcomed

* William of Malmesbury, book i., p. 15, ed. Bohn.

the students of England, providing without charge for their support, and supplying gratuitously both books and instruction."*

About the same period, Greek was assiduously studied in some parts of Germany. Bavaria was almost conterminous to the people, the habits, and the language of the Byzantine empire. Greek missionaries promulgated Christianity throughout the land, and invited the adhesion of the inhabitants to the rites of the Greek communion. Sisinius, Martyrius, Alexander, Dobda, and other Greek priests, spoke Greek in their ordinary conversation. Sipofsky maintains that the Greek, and not the Latin, was employed in the celebration of the mass, in Bavaria. Theodo I., duke of the Bavarians, who died in 680, ordained that Greek should be taught in the schools of his duchy. British and Irish missionaries, acquainted with Greek, settled in Bavaria and Southern Germany. By the invitation of Pepin and Charlemagne, learned Greeks were introduced into both France and Germany, for the avowed purpose of instructing the monks in the Greek tongue. One of these teachers, Apollonius, was established at Ratisbon.†

It thus appears, that at no time previous to Charlemagne had the prosecution of Greek studies been entirely abandoned in the western kingdoms. Foreign aggressions and domestic discords frequently diminished both the number of their votaries and the degree of their prosecution; but a germ was always preserved for cultivation in more favourable times. The ebbs and flows of such study were continual; they might for a time retire from certain shores, but they spread themselves over others, and found some refuge where they were sheltered from absolute extinction. At all times there were Greeks, Greek scholars, Greek teachers, and Greek studies on the soil of western Europe; and the pursuits which had been with difficulty kept alive during the troubles and disorders of the sixth and seventh centuries, were reinvigorated by the policy of Charlemagne, and the energy of a new but slowly rising civilization.

In the second part of his dissertation, M. Cramer renounces the geographical distribution of his subject, and is content to descend the stream of time with little other guide than a disorderly chronology. The reign of Charlemagne, and the establishment of a substantive empire of the west, do, indeed, give such an appearance of unity to the Teutonic nations, that it permits again the contrast of the eastern and western empires as the two component members of the civilized, or semi-civilized world. Only two of the western countries, Spain and Britain, in consequence of their insular and peninsular situations, and the peculiarities of their

* Cramer, ps. i., cap. xii., pp. 38-42.
† Cramer, ps. i., cap. xiii., pp. 42–3.

domestic condition, followed a different course from the rest of western Europe in their literary development, and even these were closely connected to the general system by the unity of the Latin faith.*

There is scarcely a single department of social amelioration in which Charlemagne did not render conspicuous services to the cause of humanity. Greek studies were certainly not among the number of the exceptions. His assumption of the iron crown of Lombardy, and his coronation as emperor of the west, brought him into direct and continual communication with the Byzantine successors of the Cæsars. He received frequent embassies from the emperors Leo IV., Nicephorus, and Michael, and maintained a constant diplomatic communication with the east. His imperial pretensions required confirmation, or at least acknowledgment from the Greeks; his dynasty needed the sanction which the legitimate inheritors of the Roman dominion alone could give. The relations between the two empires were sufficient, both in act and in prospect, to demand that measures should be taken to ensure readiness and facility of intercourse. With this view he issued an ordinance, in the year 804, establishing Greek and Latin schools in connection with the church of Osnaburg. The motives of the institution are distinctly avowed: "As it may happen that the emperor of the Romans and the king of the Greeks may be disposed to contract matrimonial alliances between their children, then the bishop of that city shall assume the labours and honours of the embassy, at the expense of the king or emperor. And we have made this decree, because we have ordained that the Greek and Latin schools shall be perpetuated in that place, trusting that at no time will there cease to be clerks there familiar with both languages."†

Neither the occasion nor the requirement was altogether imaginary. Before Charlemagne's assumption of the imperial crown, the empress Irene had (A. D. 781) negotiated a conjugal alliance between her unfortunate son, Constantine VI., and Rothrude, the eldest daughter of the king of the Franks. The marriage was never consummated; the policy and intrigues of the empress-mother having subsequently contemplated far other connections for her son.‡ But Irene despatched the eunuch Elysæus to the court of Charlemagne, to instruct his daughter in the speech and

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* Cramer, ps. ii., cap. xvi., p. 13.

† Cramer, ps. ii., cap. xvi., p. 17. "Nisi forte contingat," is the commencement of the extract from the ordinance in Cramer; but the true reading appears to be "Si forte contingat," as Constantine had been blinded and deposed by his mother, and Irene, after a vain proffer of marriage to Charlemagne, had been dethroned by Nicephorus previous to the date of the ordinance.

‡ Finlay, Byzantine empire, b. i., chap. i., vol. i., p. 93.

usages of the Byzantine palace. To complete or extend this instruction, Charlemagne invited to his court Greek scholars of eminence from various parts of his dominions. The proposed marriage did not take place, but the monarch devoted his own attention to Greek studies, and acquired a more or less accurate acquaintance with the language. His communication with the eastern sovereigns was frequent, and he sought everywhere for those most accomplished in Greek to act as his ambassadors. Such a mission was discharged by Hatto, abbot of Reichenau, who is supposed to have narrated the incidents of his journey in Greek. There are several indications to prove that Greek was subsequently studied in the monastery of Reichenau.

From this convent, Greek was perhaps transferred to the neighbouring monastery of Saint Gall, where studious monks acquired a knowledge of the language from the grammar of Dositheus, and where, in subsequent times, it continued to be prosecuted with considerable diligence. Hartmote, a scion of the Carlovingian house, and abbot of Saint Gall, in the latter part of the ninth century, is reported by Mabillon to have been familiar with Latin, Greek, Hebrew, and Arabic. In that monastery, so celebrated in the history of classical philology by the discoveries of Poggio Bracciolini, there was an association of *Fratres Hellenici*, and the Greek continued to be taught long after the period to which M. Cramer's present researches extend. It was taught there in the beginning of the fifteenth century by Notker, whose death is recorded in Greek in the necrology of the convent, by Iso, and Marcellus. This Iso was the preceptor of Solomon, bishop of Constance, the reputed author of one of the earliest Latin lexicons, the Papia.*

Besides Hatto, Charlemagne sent Amalhams, bishop of Treves, and Peter, another bishop, to treat with the emperor Michael concerning the terms of peace. With these, Leo, the successor of Michael, sent back to Charles, Christopher, the protospatharius, and Gregory, the deacon.

Such frequent intercourse must have been singularly influential in imparting to the west an acquaintance with the higher civilization, the literature, and more cultivated language of the east. Indeed, the Teutonic populations incurred heavier obligations to the institutions of Byzantium, than have ever been acknowledged, or even suspected, except in rare instances, by their descendants.† If the successors of Charlemagne had possessed any portion of the talents and energy displayed by him, or if his dynasty had been able to prolong the unity of his domain,

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* DuCange, Gloss. Med. et Inf. Latin. Præfatio, § xlii.

† Finlay, Greece under the Romans, chap. i., p. 22.

the connection between the east and the west must daily have become more intimate; their reciprocal transactions more varied and important; and the alliance or the intercommunion of the two empires might have hastened the advent of modern civilization. The destinies had decreed other fates for the nations; but Charlemagne was obedient to the dictates of a natural and sagacious anticipation, when he endeavoured to institute a seminary of Greek scholars to facilitate the prospective diplomatic intercourse with Constantinople.

But, however vain his imaginations in regard to the permanence of the vast monarchy he had founded, the measures which he adopted for the advancement of education and the furtherance of Greek culture, were not without important results. From his collegiate foundations proceeded, after the slow course of generations of decline and misery, the great universities which shed so much lustre over the later centuries of the middle ages; and the example which he left behind him of the encouragement of Greek letters kept alive their study, or the desire for their study, till the general revival of learning in the west.

Not long after the death of Charlemagne, the monastery of Corbey, in Saxony, embraced the Greek within the circle of its avowed pursuits. One of its monks, Christian Druthinar, in the middle of the ninth century, is reported to have been learned in the Greek and Latin. Nor does it appear that the study of Greek was ever discontinued in these monasteries, though the evidence is not sufficient to authorize any positive conclusion. Wicboldus, or Wibaldus, commemorated in the annals of Corbey as a reformer of the schools, and as an incomparable abbot, was sent on an embassy to Constantinople by the emperor of Germany, and died in the capital of the east in 1174. At Osnabruck, Hermannus Contractus, the alleged translator of several of the works of Aristotle, was distinguished in the thirteenth century for his Greek acquirements.*

During the reign of Charlemagne, Theophilus gave instructions in Greek, in the school of Tours; and the language was also studied at the same time, with but little diligence, in some monasteries in the north, as well as in the south of Gaul.* There is, however, much danger of being deceived in the generations succeeding Charlemagne, by the frequent affectation of Greek acquirements, when the acquaintance with this language and literature was limited to a knowledge of a few phrases, and of Latin versions.

Amongst the eminent scholars invited by Charlemagne to

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* Jourdain, Sur les Traductions d'Aristote, cap. iii., pp. 138–142.

† Cramer, ps. ii., cap. xvi., pp. 13–19.

assist the Greek studies of his daughter Rothrude, one of the most distinguished was Paulus Diaconus, or Paul the son of Wamefrid, a native of Friuli, and a monk of the celebrated Benedictine monastery of Casino. The instructions of Paul were communicated to many persons, including priests, who had been designated as members of the suite of the imperial bride in her removal to Constantinople. But Paul, in his old age, disparages his Hellenic lore, and intimates that he had in great measure forgotten it. M. Cramer, however, considers that the Greek was still the vulgar idiom at Benevento; and he calls attention to the remarkable fact, that there were thirty-two teachers of philosophy, the generic name for liberal learning, at that place, in the reign of the emperor Louis II.*

In the latter part of the ninth century, John of Sicily composed, in the Greek tongue, a general chronicle, which still remains in manuscript; Joseph, also a native of Sicily, lived and died a monk at Constantinople; Luitprand, in the narrative of his embassy to the court of Nicephorus Phocas, cites a Greek verse from the prophecies of Hippolytus, a Sicilian bishop.† Who this Hippolytus was, or when he lived, is unknown to Luitprand, and is equally obscure to us, but it is not probable that he preceded Luitprand by much more than a century.

At this period, Duke Sergius, the governor of Naples, had cultivated the classics with so much success, that he was in the habit of translating the Greek into the Latin, *ad aperturam libri*. His two sons, Gregory, *magister militum*, and Athanasius, a bishop, were equally accomplished; and the children of other noble families were educated with similar care.‡

At the monastery of Fulda, Rhabanus Maurus, one of the stars of the Carolingian firmament, devoted considerable attention to Greek, and seems to have been imbued with some tincture of Greek letters. Lupus Servatus, abbot of Ferrieres, a disciple of Rhabanus, was a smatterer in Greek; but Eguihard had attained to greater proficiency in the language.§

The successors of Charlemagne witnessed the darkest period of the middle ages. "*Vilio honos studiis.*" In the midst of arms, the peaceful pursuits of literature were necessarily disregarded. Anarchy, sedition, and civil war at home; the incursions of the Normans, and the ravages of piratical Danes and Saracens, almost overwhelmed the remains of former culture. All learning declined, and Greek shared the fate of other humanities. When Alfred established his palatine school, and encouraged education

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* Cramer, ps. ii., cap. xvii., pp. 19–22.
† Luitprandi Legatio, ex Muratori, Script. Rev. Italic, tom. ii., pp. 484–5.
‡ Ozanam, Des Ecoles, &c., § i., pp. 360–1.
§ Cramer, ps. ii., cap. xviii., pp. 22–6.

throughout his kingdom, the sons of the nobility were instructed in Latin and Anglo-Saxon, but not in Greek. In Italy and Sicily, however, as has been previously mentioned, the cultivation of the Greek tongue was uninterrupted, and it was during this period that the science and philosophy of ancient Greece were pursued with such devotion and success by the Saracens, as to ensure, in a future age, the ready communication of the results of Greek genius to the populations of western Europe.

But, gloomy as were, in most respects, the prospects and fortunes of the ninth century, it was illustrated by the scholarship and labours of Joannes Scotus Erigena. He was a native of Ireland, and, besides being acquainted with the Arabic, Hebrew, and Chaldee, had acquired a mastery of Greek so rare in that age, that he has been represented as a resident of Athens for many years. There is no sufficient foundation for the tradition of this Attic education, and the story has consequently been rejected by recent scholars. His learning, such as it was, sprung from his studies in his native land, where Greek had not altogether ceased to be an object of study.* The genius and erudition of John Scott secured for him the favour and patronage of two contemporary princes, Alfred of England and Charles the Bald of France. There is some difference of opinion in relation to the date of his visit to the latter country. His arrival in Paris is alleged by some authorities to have taken place in 870: it is ascribed to A. D. 850 by the editors of the *Histoire Littéraire de France.* The Greek emperor, Michael the Stammerer, who had revived literary studies at Constantinople, in the year 827, had sent the works of Dionysius the Areopagite as a present to Louis the Pious, emperor of the west. The letter of Louis to the abbot Hilduin, then librarian of the monastery of Saint Denis, testifies to the continued existence of Greek studies. But no one was found competent to undertake the task of translating the Greek manuscript until the advent of Joannes Scotus. He was cordially welcomed in France, and received with flattering honours by its sovereign. Admitted to the royal table and familiarity, he charmed his host by his wit and intelligence. Invited by the king to produce a Latin version of Dionysius, he performed that duty with scrupulous and tedious fidelity. His literary labours and his Greek achievements did not end here. His celebrated work, *De Divisione Naturæ*, is believed to have been originally composed by him in Greek, for the purpose of concealing, under the additional obscurity of an unfamiliar language, the pantheistic heresies, which were not sufficiently disguised by the obscurity of his style and subject. In this treatise, Erigena furnished one of the very earliest examples known to the

* Caraman, Hist. des Rev. de la Philosophie, chap. v., vol. i., p. 257.

west, of that conjunction and identification of theology and philosophy, which had been already exhibited in the eastern empire, and which subsequently governed the intellect of Europe as mediæval scholasticism. The Division of Nature is full of references to the Greek fathers and the Greek philosophers; and the extent of the Greek acquirements of the author is exhibited, not merely by his quotations from the Greek, but also by the insertion of Greek lines in his Latin poems, and by the composition of pieces altogether Greek.

The presence of Joannes Scotus revived the study of Greek in the literary court of Charles the Bald—which affected to rival as well as to imitate the glories of Greece and Constantinople. Many Greeks had been persuaded, by the invitations of the monarch, to visit France. Manno translated some treatises of Plato and Aristotle. The employment of Greek became so familiar as to become fashionable; and the custom was renewed, which had prevailed under the former Latin empire, of inserting Greek words and verses in the text of Latin compositions. This practice, however, does not entitle those who followed it to be regarded as themselves Hellenists, nor does it require any such suspicion of supernatural inspiration as was resorted to by the contemporaries of John Erigena to account for the possession of his really extraordinary learning.

Boniface, the apostle of the Germans, founded the school as well as the church of Utrecht. In this school, Gregory, his disciple, taught Greek among the other branches of a literary education. Here Bruno, the brother of the emperor Otho I., imbibed such a devotion to Greek, that, when he became bishop of Cologne, he introduced into his episcopal city the study of that language, in conjunction with the Latin. In the Batavian monastery of Egmont, Greek was taught under the abbot Stephen in the tenth century, and the abbot Walter in the twelfth. In the court of Conrad I., Bovo distinguished himself by displaying his proficiency in Greek in the presence of the emperor. Ratherius, the teacher of Bruno, had been acquainted with Greek. Throughout Lorraine, Greek priests, exiled in consequence of the iconoclastic discords, were established. They were supported by the episcopal funds, and were permitted to retain the Greek liturgy and Greek rites.

In the eleventh century, Humbert, a Burgundian, studied Greek in the convent of Moren-Moutier, with such success, that Pope Leo IX., who had been his preceptor, commissioned him to settle the schism between the Greek and Latin churches, and, in order to facilitate his efforts, bestowed upon him an archbishopric in Sicily, where Greek was still the vulgar speech, as has been several times mentioned before.

In Britain, Greek was still studied with success in the tenth century, as appears from the life and example of Odo, archbishop

of Canterbury, and master of the school founded there by Theodore. It was also still taught in Ireland.*

In proportion as the Papal encouragement was withdrawn from Greek and other secular pursuits, the German emperors, whose intercourse with the Byzantine court, and whose hostility to the papal supremacy, were daily increasing, fostered Greek and vernacular literature. We have already referred to the edict of Lothaire I., in which he provided for the general education of his subjects, and the gratuitous education of the poor. Otho I. invited Gunzo of Verona to his court, on account of his learning, which extended to mathematics, astronomy, physics, and Greek. The natural sciences were at that time inseparably connected with Greek literature; they had been preserved and amplified in the Greek tongue, and were successfully acquired only in Greek schools. In the Bohemian monasteries of Benedictbaiern and Wessobrunn, Greek is said to have been understood; and it is scarcely probable that the knowledge of the language should not have been extensively diffused at a time when scientific and philosophical pursuits were once more rising into favour.

At Florence Lothaire had established one of his nine schools. Here Greek was taught. Florentine manuscripts of Greek authors, executed in the tenth and eleventh centuries, are still preserved. The monkish chronicler of Salerno, who wrote about A. D. 978, refers to Greek volumes and Greek manuscripts recently written.†

The tenth century was the brilliant era of Greek studies at Venice, which surpassed all other cities and nations in its successful cultivation of Hellenic literature. Its commerce and intimate communion with the eastern empire must have rendered Greek almost as familiar on the Rialto and at the Dogana as on the streets of Constantinople. It was at Venice, two hundred years before the era of Eustathius, that the celebrated Venetian Scholia on Homer were composed; and it was at Venice, in the tenth century, which has been represented to be the darkest period of the middle ages, that the study of Homer was revived, and was most assiduously prosecuted. The Venetian manuscripts indicate the careful comparison of different Homeric texts, and an ample provision of the different editions of the poet; and in one codex are inserted various readings extracted from the texts of Homer published by Chios, Cyprus, Crete, Argos, Sinope, Marseilles, and other cities and countries, from the two revisions of Aristarchus, the two of Antimachus, and from the editions of Zenodotus, Aristophanes Byzantinus, Callistratus, Rhianus, Sosigenes, and other editors.‡

It cannot be supposed that, in a city where Homer, and every

* Cramer, ps. ii., cap. xx., pp. 34–38.
† Cramer, ps. ii., cap, xxi., pp. 38–43.
‡ Cramer, ps. ii., cap. xxii., pp. 43–4.

thing that pretended to an Homeric origin, were so diligently and intelligently studied, the Greek language was an unusual accomplishment. Direct testimony may be frequently refused by the arid chronicles of the times to facts familiar to the contemporary generation, and so familiar as not to excite remark. We may desire to obtain fuller evidence than the records afford, but the absence of a complete and unbroken chain of evidence furnishes no presumption adverse to the reality of the facts. It may be difficult, or even impossible, to adduce witnesses in proof of any extensive cultivation of Greek in the tenth or preceding centuries, but every testimony which can be obtained, is only incidental and unexpected, and may be properly regarded as of much wider application than to the particular instance in connection with which it is rendered. Thus, the character and age of the Venetian scholia do not testify simply to the fact that there was one or more accomplished Hellenists at Venice in the tenth century, but may fairly be held to demonstrate that Hellenic literature was in vogue there, and that there was contemporaneously a class of scholars sufficient to inspire and competent to appreciate investigations in Greek, which would have been creditable to the literati of Byzantium, or even to the critics of Alexandria. This inference is larger than the evidence; true: but it is by no means larger than the probabilities of the case require; and it receives confirmation the moment we note the silence and obscurity in which nearly all intellectual and literary labours have been left by the majority of the monkish chroniclers. We are assured by an actual record that Greek was studied at Venice in the tenth century,—was it neglected in the other cities of Northern Italy? In some of them, we know that it was not; but was it unknown except in those places in regard to which some positive indications have survived? By no means: the presumption is favourable, not adverse, to the admission of Greek studies in these places. We find no statements in our authorities which throw any light on the knowledge or ignorance of Greek at Milan, in the tenth century. M. Cramer produces no text. But this study was then, probably, cherished there, for we find in the next century that two richly endowed schools had long been maintained at Milan, and the Greek acquirements of two Milanese priests are mentioned with commendation but without surprise.*

* Ozanam, Des Ecoles, &c., § ii., p. 391, who cites from Landulfus senior, lib. ii., c. 35, and lib. iii., c. 21 and 23: "Scholæ diversarum artium ubi urbani et extranei clerici philosophiæ doctrinis studiose imbuebantur erant duæ . . . ex longa temporum ordinatione archiepiscoporum antecedentium stipendiis." "Andreas sacerdos in divinis et humanis, Græcis et Latinis sermonibus virilis" "Ambrosius Biffius in Latinis litteris et Græcis eruditus atque ideo Bifarius dictus." These men must have had Greek scholars for their teachers, and schools similar to the Milanese existed in other Italian cities.

It was in the tenth century that Luitprand, a deacon of Tesinio, and subsequently bishop of Cremona, performed his two embassies to Constantinople. On the first, he sailed from Venice, in company with Solomon, the Greek ambassador to Spain and Saxony, who was on his homeward voyage. The second and more important journey of Luitprand was undertaken in 968, in behalf of Otho I., to seek for his son the hand of Theophania, daughter of the emperor Nicephorus Phocas. Luitprand's Greek acquirements may have been very superficial, but they were sufficient to enable him to understand the conversation of the Greek emperor without an interpreter, and to read Homer and other Greek authors. Besides Luitprand, the services of John, bishop of Piacenza, and Bernard, bishop of Wurtemburg, were also employed by the emperor Otho in urging this matrimonial alliance with the Byzantine court.

Theophania was granted to the prayers of Otho, and in her western home encouraged the study of her native tongue. Her son, Otho III., appears in his correspondence with Gerbert, afterwards Pope Sylvester II., to have imbibed from his mother a strong partiality for Greek, and to have cultivated it with success.*

Who was Joannes Italus? The histories of philosophy, and the other works of reference accessible to us, are silent in regard to him. He is unmentioned in the useful and laborious *Onomasticon* of Saxius. Was he an Italian refugee, trained at Venice in the Greek studies of the Venetians, or was he a native of the Greek empire? Information in regard to him and his career is said to be communicated in the commentary of Lambeccius on the library of Vienna. But Lambeccius is entirely beyond our reach. All that we have been able to discover is that John, the Italian, who is unnoticed by M. Cramer, lived at Constantinople about the middle of the eleventh century, was the rival of the eminent philosopher, Michael Psellus, and wrote a profound work in the Greek language, entitled, Explanations of Various Questions.† The treatise is still in manuscript. Some extracts have been published by Waitz, notwithstanding he complains of the tedium occasioned by the perusal of its pages. Yet, even in the specimen published, the learning, talent, and originality of the author are evident, and it is worthy of remark that the conflicting doctrines of Nominalism and Realism, as revealed in the dissensions of the ancient philosophers, had engaged his careful consideration.‡ For our own part, we are obliged to confess, that the slight taste of the

* Cramer, ps. ii., cap. xxiii., pp. 46–50.

† Waitz, Aristotelis Organon, vol. i., p. 13.

‡ περὶ τῶν γενῶν καὶ τῶν εἰδῶν πολλοὶ τῶν ἀρχαίων διαπεφωνήκασι φάσκοντες ὁι μὲν ὄντα τὰ τοιαῦτα ὑπάρχειν, ὁι δὲ μὴ ὄντα, ἀλλὰ φιλῇ ἐπινοίᾳ λαμβανόμενα, ὥστερ Ἀντισθένης ἔλεγεν.

scholia of Joannes Italus, afforded us by Waitz, renders us solicitous of having the opportunity to examine his complete treatise.

It would be dangerous to undertake, in the closing page of this notice, any criticism of the Greek attainments of the celebrated Gerbert. That he, and several of his contemporaries, were acquainted with the language, is exceedingly probable, if not absolutely certain; but the literary and philosophical career of that illustrious pope have occasioned so many controversies, that it would be imprudent to entangle ourselves in their discussion without more space than remains at our command. M. Cramer does not ascribe any extensive proficiency in Greek to Gerbert: he recognizes Pope Gregory the Seventh's acquaintance with that language; he admits the cultivation of Greek at the medical school of Chartres; and he notes the travels of Ulric of Ratisbon, prior of Freisingen, in Greece and the Holy Land, from which pilgrimage he brought home the supposititious work of Callisthenes relative to Alexander the Great, which he translated faithfully into Latin.*

These notices bring down the chronicle of Greek studies in Western Europe to the era of the crusades. They demonstrate sufficiently, by general considerations, by cogent inferences, and an adequate array of special instances, that at no period subsequent to the establishment of the Roman empire, was the Greek language entirely uncultivated or unintelligible in the west. The knowledge might often be confined to but few scattered students. or it might be entirely lost for a time in particular localities, but it was preserved without interruption in the west, and the literature, as well as the tongue of Greece, were often, and in many places, studied with systematic diligence, when the gloomy condition of the age seemed to forbid the presumption of such pursuits. It must be observed, however, that an acquaintance with Greek did not always imply, in the middle ages, familiarity with the classic productions of ancient Hellas, but were frequently limited to little more than a moderate intelligence of the spoken tongue of the contemporary Greek empire. But the tendency of late centuries has been to underrate, in a preposterous manner, all the departments of mediæval civilization, and the degree of the error into which we have been thus betrayed in recent times, will not be detected until the whole subject of mediæval history has been investigated more cautiously and laboriously than has been done hitherto. We expect with solicitude the continuation of M. Cramer's researches, which will bring down the consideration of the subject to the fall of Constantinople and the period of the *renaissance.*

* Cramer, ps. ii., cap. xxiv., pp. 50–56.

Art. II.—OUR ORGANS OF DESTRUCTIVENESS.

Reports of Experiments on the Strength and other Properties of Metals for Cannon; with a Description of the Machines for testing Metals, and of the Classification of Cannon in Service. By Officers of the Ordnance Department U. S. Army. *By Authority of the Secretary of War.* Philadelphia: Henry Carey Baird. 1856.

The subject of our national defences has recently received attention from various quarters, which have heretofore appeared as oblivious of its importance as manifestly ignorant of its details. Army organization has suddenly become a fertile theme for newspaper writers, for certain ambitious members of the bureaucracy of the federal city, for a somewhat dreary congressional report, and for the usual supply of staple for Buncombe, giving a momentary variety to the perennial platitudes and stupendous commonplaces of legislative eloquence. It has been proposed by some of these military reformers, to give vitality to that obsolete provision of the constitution, which, under authority from Congress, permits the States "to keep troops in time of peace," and to constitute our future war establishments from the heterogeneous materials which would thus be brought together. It is not our purpose to discuss this plan, or to enter upon a review of the grave objections to which we believe it liable. We refer to it only as an illustration of the radical and sweeping character of the changes which have been proposed, and shall dismiss it with a single remark and illustration. Apart from the disgraceful exhibition of "constitutional scruples," in the attack upon Queenston Heights in 1812, it is plain that an army, composed of detachments from States, must constitute, in effect, but a half-organized debating club; questions of State rights and international law would arise at every State boundary, and the orders of the commander-in-chief would have to be submitted to a popular vote before they could be carried into execution. The scene enacted on board one of our military transports, during the late war with Mexico, would soon cease to be a novelty. A man had been sentenced, for "mutinous conduct," to "wear a ball and chain." The day following the promulgation of the sentence, an election for governor was held in New York, and the colonel of the regiment, alive to the democratic theory, determined to maintain the right of suffrage, according to the custom of war in like cases. At tattoo roll-call, therefore, an order was published, directing the men to muster on deck for an election for governor. The polls were opened, and the men voted as their names were called by the sergeants. Over this serious operation, the colonel presided with military gravity, and when

the voting had concluded, he stood at the polls with pencil and paper, recording the results, as the separate votes were announced by the tellers. The first ballot drawn was for "Silas Wright," the second for "No ball and chain," and the contest betwen the Cato of America and this distinguished competitor for gubernatorial honours, was so close, that it long wore a gloomy aspect for the friends of the "Son of York," but finally terminated in his favour by a small majority. This plan of State armies, therefore, though it might simplify, and possibly facilitate, the process of raising troops, would probably find its pre-eminent distinction in the "aid and comfort" which it would administer to the enemy. We have had our system of coast fortifications defended, not on considerations of past experience and present necessity, not on the wisdom of their plans and the strength of their walls, but by a process which might well suggest doubts as to its policy, if that policy now required vindication. The prolific daily, the portly monthly, and the ponderous quarterly, have been pressed into service, in furnishing disquisitions on tactics, organization, fortifications, and other points connected with our military defences; but the element on which all these depend for their efficiency, has been completely ignored. Thousands of dollars have been expended every year, for half a century, in the fabrication of small arms and heavy ordnance, in testing their capacity and perfecting their details; yet beyond two or three pages—and these almost hermetically sealed beneath the voluminous mass of official verbiage—of that document whose dimensions are now equal to a circulating library, with which the press of the public printer annually groans, nothing touching the results of these expenditures has been given to the people. Yet, in fact, the improvements in the armament of troops and fortifications, constitute the chief, if not the sole achievements in modern military progress. The tactician yet confines himself substantially to the evolutions and manœuvres of the great Frederick, and the engineer, with unfaltering devotion and increasing admiration, continues to reproduce the boyaux and bastions, the ravelins and redoubts, of the unapproachable Vauban. It is true that the "experience, constant and varied, in the application of scientific or technical principles to the endless variety of circumstances, geographical, topographical, and climatic, which," we are dogmatically assured by very high authority at Washington, is necessary to elevate the engineer to an appreciating sense of the high "labours and responsibilities of his corps," has been variously illustrated in the progress of our own history. Several points in the neighbourhood of the Rio Grande, may perhaps yet be adorned with certain original and striking monuments of our success, illustrative of those "particular studies and peculiar applications of science, which are indispensable to the education and experience of the officer of engineers." But notwithstanding these magnificent

pretensions, so grandiloquently set forth, and these magnificent results, from Vauban to Todtleben, there has been no essential advance in the art of fortification. The commission *de Sebastopole inquirendo*, which our enterprising Secretary of War despatched so many months since, has not yet reported [*in print*,] and it seems not improbable that the usual period of incubation will be doubled, before the *accouchement* is announced. When this event shall have transpired, we may possibly be able to understand why Sebastopol so completely demolished all the well known "scientifically" established rules for the legitimate endurance of a siege, and so long laughed to scorn the efforts and resources of the allies. If, however, we do not err in our conjectures, the success of the defence will finally be attributed, not to any new principles or "peculiar applications of science" in the art of engineering, but to a daring and skilful use of the heavy metal and ponderous projectiles of the besieged. The breastwork or parapet, whatever its *trace* or relief, or however ingeniously its lines may be adapted to localities, to keep one party in and another party out, pretends to be nothing more than a fulcrum for the application of the lever of the artillerist, which lever is the weapon that decides the conflict, and, in the authoritative language of Jomini—the glory and shame of the military profession—constitutes the "soul" of the defence. While the science of defence, then, in its passive or engineering relations, has, in its own parlance, been *marking time*, or has made little perceptible progress for about two hundred years, its active principle has been advancing with enormous strides, and the energies of cold iron have been developed with the most startling and triumphant results. If Louis XIV., according to Mr. Macaulay, evinced his usual sagacity in placing, as early as 1693, the issue of the tremendous struggle then pending between himself and the coalition, on "the last piece of gold," it may be affirmed, without much hazard, that, in these days, calibre and not coin is the preponderating element, and that the superior metal must win, in all questions which are submitted to the arbitrament of gunpowder.

Much that has been accomplished in the United States, in improving and perfecting the *materiel* of war, within the brief period of a few years, is now for the first time given to the public in the handsome volume, the title of which is prefixed to this article. Apart from its professional value, the work must prove of great utility to American ironmasters, and the most important contribution to the cause of practical science—not excepting the extract of logbooks and the tincture of gulfstreams—yet made by our government officials. In the following pages, we propose briefly to glance at the processes and results, which are so lucidly described in the volume before us, and which we cannot but regard as the earnest of an ample reimbursement to those nations

of the other hemisphere, from whom we have borrowed so large a proportion of our military knowledge.

The ores of iron, in all their diversity of character and quality, are scattered over our globe with a beneficent profusion, wisely proportioned to the utility of the metal. As it is the most necessary, so is it the most generally diffused of any of the minerals. And as if to invite commerce and promote the intercourse of nations, the ores of one locality are found to improve those of another; and while England probably produces a larger quantity than all Northern Europe, she yet finds it necessary to employ the products of the Russian and Swedish mines. Our own country is rich in ores of the most valuable varieties. Within South Carolina, but little has been done towards the development of mineral wealth, but enterprise and capital are alone wanting to measure the vast deposits of the Spartanburgh district. In North Carolina, beds of coal and iron have just been revealed, of such magnitude and value, and in such favourable proximity to each other, that nature seems to point it out as the spot for that national foundry, which we have heard recommended from a period whereof the memory of man runneth not to the contrary. Probably three-fourths of the iron beds within the boundaries of the Union, are practically, if not really, unknown to their possessors. If not absolutely criminal, it is certainly unwise to let these beds thus remain unopened. If any foreign power were to agree to supply us for nothing with all the iron required for our consumption, it may well be doubted, if it would be wise policy to accept the offer. There is a curious connection between the progress of society and the use and manufacture of iron. The history of civilization is the history of this leading element of the arts; and the decline or loss of one would probably soon be followed by the destruction of the other. Iron adapts itself to our tastes, caprices, and necessities; the same ore contributes to the implements of the household and the workshop, of agriculture and of war; to the cutlery from Sheffield or Waterbury, that decorates the mahogany of the *bon vivant*, the chain and coulter of the plowman, and the hatchet of the pioneer; to the needle with which Henrietta of France wrought embroidery with her ladies of the bedchamber, and to the sword which vindicated right and justice in falling upon the neck of Charles the First; to the spring of the watch suspended from the waist of the heiress, and to the mighty engine which moves the wheels and spindles of Lowell and Manchester. But, though iron is the most common and useful of metals, the proper mode of treatment, by which the maximum of its utility may be attained, and its various qualities rendered most subservient to the purposes of man, has perhaps not yet been thoroughly determined. Experiments on these points have been continued for many ages. In the fourth chapter of Genesis, we read that

Tubal-cain was "an instructor of every artificer in brass and iron." Homer is authority as to the scarcity and importance of iron in his day, and we are informed that a piece of iron weighing forty pounds, presented by the conquered Porus, was esteemed a precious gift by Alexander. The Romans established ironworks in Gloucestershire, soon after their conquest of England; and though the quantity of iron manufactured in that country did not exceed, at the close of the reign of Charles the Second, ten thousand tons per annum, the rapid consumption of wood for smelting had so alarmed the people, that parliament interfered to prohibit the manufacture, and to preserve the forests. After the invention of Lord Dudley in 1619, by which bituminous coal was substituted for wood in the smelting of the ore, considerable impulse was given to the working of the mines, but with no extraordinary results. Owing to the ignorance and prejudices of the people, the invention was not generally adopted until 1740, and that year the product of England and Wales was but about seventeen thousand tons, although fifty-nine furnaces were in operation. In 1788, the quantity produced had quadrupled, and about this time the invention of the steam-engine emancipated the business from its dependence on water-power, and permitted the establishment of furnaces in the vicinity of the ores. The most important invention connected with the iron manufacture originated at this period, without which it is not probable that the supply of the metal would now equal half the annual product of Great Britain; for, without it, the construction of railroads, iron ships, and even girders and ties for buildings, would not have been practicable. We refer, of course, to the invention of Henry Cort, by which cast iron is converted into wrought, in reverberating furnaces, and the crude mass thus obtained, transformed into bars of the desired shape and size by passing it between grooved rollers. It is impossible to estimate the value of this contribution to the cause of human progress. The profits to British mine-owners have been supposed already to exceed sixty millions of dollars, and yet this sum is inconsiderable compared with the vast advantages accruing to the world from the invention, through the channels of agriculture, commerce, and the mechanic arts. This is one of those victories of peace, before whose beneficent glories the proudest triumphs of the warrior fade into forgetfulness. Yet England paid the Duke of Wellington fifteen millions of dollars for labouring successfully to overwhelm her with an incubus of debt, while the genius and energy of Cort received no adequate national acknowledgment, and he was permitted to go down to the grave, after having spent life and fortune on his invention, a broken hearted man, on a pension of two hundred pounds per annum.

The introduction of the hot blast, in 1829, whereby the consumption of coal was greatly reduced, was the next great improve-

ment in the business; and this was followed, in 1837, by a process for substituting anthracite coal for bituminous, in the smelting operation. Aided by these various facilities for fabrication, the quantity of iron produced in 1806 in England, was 250,000 tons; in 1827 it amounted to 690,000, in 1840 to 1,000,000, and it has been estimated that the product of 1856 will not be less than 3,500,000 tons. The quantity produced in the United States the present year will probably equal that of England in 1840.

The abundance and durability of iron have always commended it as the best material for cannon; but the frequent inconsistent and unexpected results which have attended its use—its tenacity at one time, and its want of cohesion at another—its apparent capriciousness and treachery, have ever rendered it an object of suspicion, and sometimes of terror, to the artillerist. These facts suggested the necessity of a more thorough study of its qualities, and of the conditions which the process of fabrication demands, in order that the best use of its properties as gun metal might be made. In the language of the introduction to the work under consideration, "past experience had shown such different results in the endurance of cast iron cannon, that it was evident no sufficient reliance could be placed upon the guns then in service, [1840,] nor upon those daily manufactured for the government. Some of these guns had been severely tested, and endured, without apparent injury, more than two thousand rounds, but others, ordered to be made exactly like them in every particular, frequently failed to bear even the proof charges, or burst after a few rounds in service. Their failure was not, therefore, due to the material, but because the founders were not familiar with the variety of metal best suited for the manufacture of cannon, nor with its proper treatment during that process." It thus appeared that we had been casting cannon through a long series of years, and had found these guns defective and unreliable, and yet had made no effort to discover a remedy. We had blundered on from one explosion to another, deriving no wisdom from experience, and, at every new necessity for an increase of our armament, like the reckless gamester of the Mississippi, we determined "to go it blind." Moreover, our legislation in reference to this matter had been systematically vicious. After the unfortunate experience of the war of 1812, in which its necessity was demonstrated, a corps was organized, to which was confided the duty of providing the equipments for troops, armaments for fortifications, and supplying the militia with such arms and accoutrements as Congress might authorize. But this arrangement was what Miss Nippers would have indignantly repudiated as "temporary." The organization had hardly been effected, or its merits fairly tested, before the law was repealed. From 1821 until 1832, as there was no one to whom the responsibility attached, so there was no one who felt a becoming

interest in improving or perfecting our military *materiel.* These eleven years of immersion constitute the dark age of our military history. "We not only failed to advance a single step in the improvement of the systems then existing," says a distinguished officer, now no longer in service, "but we absolutely lost the knowledge which the war of 1812, and subsequent service at the arsenals, had furnished." It was an interval for teaching a whole nation the lesson so well known in every household and every farmyard, that what is everybody's business is nobody's. In 1832 there was a partial, and in 1838 a thorough restoration of the system suggested by the war with England, and which, judged by its fruits, amply vindicates the wisdom of its authors. Under this new impulse, we awoke to the consciousness that cast iron might possibly possess properties or peculiarities of which we were ignorant, and that its qualities might be improved by varying the process of fabrication. It became necessary, therefore, to institute a series of experiments, going back to first principles, that we might be able accurately to estimate the value of our knowledge, as well as to determine the extent of our ignorance. But these investigations demanded time and expense, with which private establishments were unwilling to be charged, and must therefore devolve upon the government. Preparations for their commencement were made during the secretaryship of Mr. Poinsett of South Carolina, whose able and enlightened administration of the war department subsequently bore abundant fruit on every battle field in Mexico. Under a law of Congress, approved the 23d August, 1842, "a competent person may be employed by the ordnance bureau, to superintend the manufacture of iron cannon at the several foundries where such cannon may be made under contracts with the United States." The "person employed" for this duty was Major William Wade of Pittsburgh; how faithfully and thoroughly it has been performed, the "experiments" furnish most conclusive testimony. And here we may not justly omit a passing tribute to the eminent services of General Talcott, at that time acting chief of the ordnance department. He was ever alive to the interests of the service; and, by his thorough knowledge of its wants, his rare judgment and ripe experience, was well qualified to give the most efficient direction to every effort coming within his sphere of duty, designed for its advancement. Of those who deserve honourable mention in connection with our present admirable system of artillery and supplies, his name should not be least conspicuous.

The first question proposed and reported upon, in pursuance of these investigations, was to determine the effect of length of time in fusion upon the quality of iron for cannon. Four six-pounders were cast at the South Boston foundry in February, 1844. The furnace was charged with eleven thousand pounds of metal, one

half of which consisted of re-melted iron, which had been held four hours in fusion at the first melting, and the other half of fresh pigs from the smelting furnace. The first gun was cast after the iron had been in fusion thirty minutes, the next after a fusion of one hour and thirty minutes, the third after a fusion of three hours, and the last forty-five minutes later. In the proof to which these pieces were subjected, each sustained the maximum charge of three pounds of powder and sixteen balls. The one cast first burst at the ninth full charge, the second one at the twelfth, and the fourth in the order of casting at the third, while the other endured fourteen maximum charges, besides "two other heavy charges of a different kind," and remained unbroken.

Thus the relative endurance of these four guns followed the order of the relative duration in fusion of the metal composing each, up to the third gun cast, when the fluidity of the iron had been continued for three hours; but the fourth gun, cast forty-five minutes after the third, proved to be the weakest of the whole number. As nothing was developed in the operations of casting, boring, or proving this gun, up to the last fire, that indicated any defect or inferiority to the others, its weakness must be attributed to the prolonged fluidity of the metal before casting.

These observations appear to establish satisfactorily the facts, that the continued exposure of iron, after fusion, to intense heat, augments its cohesive power; that this power increases with the time of exposure, up to a certain (not accurately determined) limit; and that beyond this limit, which, for the quantity of metal here employed, cannot be far from three hours, the strength of the metal is rapidly impaired. This result will be found to be somewhat analogous to what was observed as to the effect of long continued heat, upon the celebrated Princeton gun, to which reference will be more particularly made hereafter. According to the rules given by Hutton for calculating the force of charges, the weakest of these guns evinced a power of endurance superior to any similar pieces of which we have any record of results in our service, not excepting an English, Belgic, and Swedish six-pounder, which were subjected to trial at Fort Monroe in 1841 and 1842. The force of the charge under which the Swedish gun failed at the second fire, is computed to be less than that endured by each one of the four Boston guns, the weakest of which endured that force a greater number of times than the Swedish gun. Subsequent experiments, though the results were not altogether free from anomalies, confirmed the conclusion that a gradual and positive increase of strength is attained, as the fluidity of the metal is continued, before casting.

Various experiments upon the comparative strength and density of iron, cast at different periods of fusion and in different shapes, have been prosecuted, and the results set forth with great minute-

ness of detail. It is not consistent with our present purpose to enter into an elaborate examination and comparison of the tables in which these results are recorded, but to sum up briefly the conclusions which, it is believed, have been legitimately and satisfactorily established. The iron employed was procured from the America, Richmond, Franklin, Southfield, and Stockbridge furnaces, and from various pieces of ordnance, old and new. With all these varieties of metal, an inspection of the mean results obtained, shows that the strength of the same iron may be invariably increased by judiciously prolonging the time within which it is retained in fusion, and by its being re-melted. From this uniform improvement of the character of the metal, in all respects due to its continuance in a state of fusion, or by a repetition of the melting process—thus expelling, as far as possible, all alien elements—the mode of treatment in the furnace is shown to exert a most decided influence upon the qualities of the metal, whatever may have been those of the original ore. By comparing the strength and density of iron, as it exists in the body of a gun, with the same properties, as it is found in proof bars two feet long, with a cross section two inches square, cast from the same iron, at the same time, in different moulds, a striking and curious difference is observed, showing by what apparently inconsiderable causes the metal is modified and transformed in its characteristics. Some of our modern philosophic sentimentalists, who ingeniously moralize over the broken cups of a *lager bier* saloon, might discover here a new exhibition of the harmonies and analogies of nature. Why should the particles of melted iron arrange themselves in one way, while cooling in a flat bar, and adopt another while assuming the form of a piece of artillery? Why should the force of attraction be coquettishly increased by one process, and the repelling principle capriciously developed in the other? Is the human heart, as we are so often solemnly assured by the poets, nothing but iron after all, in which the caloric is held in variable degrees of intensity, and the fact which we have just noticed, merely a new turn to Mr. Moore's passionate lamentation:

> "Alas! how light a cause may move
> Dissension between hearts that love"?

The resistance to force transversely applied, is generally considered the best measure of strength, in determining the qualities of different materials, but it is now believed that a more accurate measure of the cohesive power of iron designed for cannon, may be found in its tensile strength, or its power to resist being torn asunder, by a force exerted in the direction of its length. It is ascertained by these experiments, that the tensile strength is really greatest—as it ought to be—in the gun, and that the transverse

strength is greatest in the bar: a result to have been desired rather than anticipated. In every instance, too, the transverse strength was found to be augmented by rapid cooling in small castings, and the tensile strength increased by slow cooling in large masses. The differences in specific gravity were less marked, but it was somewhat higher in small castings rapidly cooled. The comparison of rough, broken fragments of iron, with specimens of the same iron carefully dressed with a sharp tool, without compressing the part designed for trial, showed the invariable law of greater density in the dressed specimens: as the latter must be regarded as furnishing the true test, it follows that results obtained from rough fragments—which are usually reported—cannot be relied upon as accurate.

Military men are perhaps less subject to paroxysms of enthusiasm on questions connected with their profession, than those devoted to more placid or unexcitable pursuits; for example, the financial kite-flyer, who expends his gas in blowing up "Erie" or blowing down "Harlem;" the inexorable pursuer of items, who does up the intense and thrilling for a class of daily papers, or the amateur agriculturist, who cultivates short-horned Durhams or Berkshire pigs, and believes in the virtues of *morus multicaulis* and the *dioscorea batatas*. But, however free himself from these periodical spasms, he is sometimes pressed into the service, as a hero or as a martyr. The novelty hunter, ever wordy in proportion to his ignorance, and equally qualified to set a mousetrap or to capture the Malakoff, at the return of the delirium, lays violent hands on the first idea that turns up, and proceeds to discourse luminously upon submarine batteries, breech-loading revolvers, or Coromandel catamarans. Of this character was the feeling—quite prevalent ten or fifteen years since—in relation to the marvellous results which were to follow the introduction of wrought iron guns, by which the whole system of arming ships and fortifications was to be revolutionized. Those who at least knew what they were talking about, and were disposed to receive with reasonable caution the dogmatical conclusions so vociferously enforced, were ridiculed in the papers of the day, as fogies who were too far behind the spirit of the age to excite any other emotion than that of pity, for their attachment to the prejudices of a past era; and any one who dared to question the success of these metallic panaceas and benignant peacemakers, was consigned to the limbo of superannuation, without benefit of clergy.

The Princeton gun serves to illustrate one of these periodical *furors*. One bar was taken from the broken gun, as a representative of the quality of the iron as it existed in the piece at the time of its bursting, and two bars from the same parcel of iron, and supposed to be of the same quality as that used in the fabrication of the gun. These three bars were then reduced in a planing

machine to two inches square, and subjected to a transverse strain, the bars being supported at both ends on knife edges, twenty inches asunder, and the weight applied in the middle. The deflection caused by a weight of 17,300 pounds, was one inch and eighty-three hundredths, the bar in the meantime exhibiting no cracks or indications of approaching rupture. But it is known that bars of similar dimensions, of good cast iron, will sustain weights varying from 14,000 to 17,000 pounds. Hence it appears that the weight required to *break* a bar of cast iron by a transverse strain, will *bend* a bar of wrought iron of like dimensions, and give it a permanent "*set*" varying from one to one and three-fourths of an inch. Specimens were next taken from each of the three bars to determine the tensile strength of the metal, or its power of resistance to a force exerted in the direction of its length. The two bars from the original parcels of iron yielded to a force of 46,900 pounds to the square inch, while the bar cut from the exploded carcass sustained only 38,595 pounds to the square inch.

The metal of the Princeton gun was then compared with Russia, English rolled, and American hammered iron, from which it appeared that the material used in forging the gun, was originally of an inferior quality, having less than two-thirds the strength of Russia iron, and about three-fourths the strength of English and American iron. Another fact of great interest on this question, and decisive against all future attempts to fabricate heavy cannon of wrought iron, was demonstrated by this investigation, and remains to be noticed. It has been previously observed that iron kept in a state of fusion beyond a certain time, rapidly deteriorates: here it is shown that the original strength of the metal is similarly impaired in the solid state, by exposure to very high and long continued heat—such exposure as is absolutely necessary in the process of welding so large a mass as that which forms a gun. *The iron seems to be transformed from a fibrous to a crystalline texture*, and its strength before and after welding is reduced nearly in the proportion of 6 to 5.

One of the most remarkable and valuable facts developed in the course of these experiments, is that relating to the effect of time in removing strains caused by the unequal cooling of heavy castings. It was found that a gun made of the strongest iron, with but a short interval of time between fabrication and proof, was vastly inferior in strength to one made of weaker iron, but not subjected to proof until several years after the date of its manufacture. It is known that any casting, or other solid body, will, if constantly strained for a long time, adapt itself, more or less, to the new position, and lose to a certain extent the power of self-restoration. Its particles appear to adjust themselves to their new relations or position: they resist constraint for a short time only, and then conform themselves to it, and become quiescent. Familiar exam-

ples of this capacity of adaptation, may be found in the hoops of common kegs and barrels, whether of wood or iron. When first bent round the barrel, the hoop loses but a small part of its power of restoration, but, united at the ends and confined to the object, the reactive power is lost, and a permanent *set* is acquired, nearly conforming to the circumference to which it has been applied. After this set is attained, the hoop may be bent upon smaller circles, until reduced to a curve which could not have been attempted at first without fracture, but which it now readily assumes, and with strength apparently unimpaired. If a bar of cast iron be strained until the deflection is about three fourths of that which it will sustain without breaking, or nearly reaches the point at which incipient molecular separation occurs, and the pressure then withdrawn, the bar will have acquired but a small measure of permanent set. If the pressure, however, is not removed, or is again applied, and continued a long time, it will be found that the bar has received a permanent set, almost equal to the deflection, and that the power of voluntary restoration no longer exists.

The strain produced in cannon by ordinary cooling, is one of compression on the exterior circumference, and of elongation on the circumference of the bore. It may be assimilated to the strain which would exist in a hollow cylinder, cut through its thickness in one of its elements, and the fissure subsequently enlarged by a mechanical force acting against the surfaces of the fissure. The obvious tendency of such a strain is to stretch the interior surface, and to compress the exterior surface of the cylinder. Now, if the strain be so far extended as to approach almost to the point of incipient molecular separation, the addition of a small central force will evidently produce rupture. Is not this the condition of cannon under the process of unequal cooling? And as the force of gunpowder acts in the same direction, a few discharges soon after casting ought to be sufficient to burst the gun. But if the same cannon be allowed time between casting and proving, to let its particles adapt themselves to the new position, and thus free the mass from the strain, the piece will be found capable of enduring a number of fires proportioned to the tenacity of the metal from which it is made.

On the hypothesis just given, the results about to be stated appear no longer a mystery, and admit of a rational explanation. An eight-inch Columbiad, cast in 1851, and proved thirty days subsequently, or about three weeks after it had cooled, with a tenacity of 37.811, sustained only seventy-two fires; while of two similar pieces, cast in 1846 and proved in 1852, one, with a tenacity of 22.989, endured eight hundred fires, and the other, with a tenacity of 29.425, sustained two thousand five hundred and eighty-two fires, and remained unbroken.

Thus the effect produced by time, in removing strains arising from the cooling process to which castings are ordinarily subjected,

appears to be satisfactorily demonstrated. The value of this fact in architecture and engineering—of which iron now constitutes so important an element—can hardly be overestimated. What length of time may be required to relieve the column, beam, or cylinder, or any other casting, from this strain, must be determined by experiment. It will be doubtless found proportional to the hardness and tenacity of the metal, and the volume of the casting. As hard, strong iron contracts most, and is consequently most strained, it will require the longest time to attain the desired end.

The distinguishing characteristic of that species of heavy artillery known as the Paixhan gun, or all that can be considered as new in principle, is due to the late Colonel George Bomford, of the United States Ordnance Department. If we are not mistaken, some half dozen of these chambered cannon were cast as early as 1813 or 1814, and may now, perhaps, be seen reposing in the quiet of forgetfulness, on the gentle slopes of Governor's island, in the harbor of New York. Full justice has never been rendered to the varied talent, quickness of perception, fertility of resource, and valuable services of the distinguished officer referred to. Of rare original genius, and of thorough professional attainments, he was utterly regardless of fame, and, instead of placing his thoughts on record, seemed carelessly to scatter broadcast the resources of his intellectual wealth, which, sagaciously employed, served to build up the reputation and furnish professional capital for those whose capacity developed itself in appropriation rather than invention. In our artillery for the land service, we have already established eight and ten-inch calibres for our heavy seacoast howitzers, the inventor having made some very successful experiments with a twelve-inch gun, the details for the service of which he was perfecting at the time of his decease. We have partly vindicated the right in giving the name of Columbiad to what our editors and orators still persist in denominating the Paixhan's gun, thereby claiming it as of American origin; but we should have made a closer approximation to the whole truth, by substituting the name of our own officer for that of the adroit Frenchman.

The models of our eight and ten-inch Columbiads were determined, and experiments instituted to ascertain their strength and durability, and general adaptation to service, in 1844. The charges used were, for the eight-inch gun, ten pounds of powder, and one solid ball weighing sixty-four pounds; and for the ten-inch gun, eighteen pounds of powder, and one solid ball weighing one hundred and twenty-five pounds. The interior of the bores and of the vents were examined at stated intervals during the firing. The bores were found to be enlarged from the centre of the ball forward, and chiefly *on the upper side, over the ball.* The enlargement was greatest at a point half an inch in front of the ball's centre, and terminated about three inches in front of that point.

After six hundred discharges from the eight-inch gun, and two hundred from the ten-inch, both pieces *appeared* as perfect and safe for service—with the exception of the enlargements—as they were before the firing. The original diameter of the vents was nearly two-tenths of an inch, and the average diameter of the vent of the eight-inch gun, after the six hundred fires, was about half an inch. Before resuming experiments with this gun, the vent was renewed with a copper "*bouche*," one inch in diameter. The copper, however, did not fill entirely the cavities formed by the previous firing, which extended from the chamber upward about three inches. At the seven hundred and twenty-ninth fire, in all, the gun burst, splitting in a vertical plane through the centre; the fissure passing through the breech and reinforce to the rear of the trunnions, where the line of fracture separated, diverging to the right and left, and passed out in the chase, about twelve inches in front of the trunnions.

After the ten-inch gun had sustained six hundred fires, the proof was resumed with a scale of increasing charges, from twenty pounds of powder with one ball, to twenty-two pounds of powder with four balls, which it sustained, bursting at the next discharge, or the six hundred and tenth fire of the piece. It split through the vent; the vertical fissure, extending from the breech forward beyond the trunnions, leaving the greater part of the chase, as in the case of the eight-inch gun, entire and unbroken.

Both of these guns endured a service abundantly sufficient to prove that their weight and strength are suitable and safe for the use for which they are designed; but these experiments do not show that their proportions are as perfect as it may be practicable or desirable to render them. The manner in which both pieces broke, proved—what our general previous experience with guns of other calibres proved—that the weakest part is that which surrounds the charge, while the muzzle, including generally all in front of the trunnions, remains unbroken. Cannon which have recently burst in ordinary practice, with service charges, have failed in like manner. The opinion, therefore, that the models of all our guns have heretofore been faulty, in this respect, seems to be no longer a matter of doubt, but is sustained by the uniform testimony of actual experiment.

Next follow reports of a series of interesting experiments in relation to the proof of cannon and musket barrels by hydrostatic pressure, which were prosecuted by Major Wade and Lieutenant (now Brevet Major) Hagner. The length to which this article has already extended will forbid anything more than a passing glance at these operations, in order that we may have space to enter, with sufficient detail, into a new mode of casting cannon, recently devised by Captain Rodman, of the ordnance department. The subject for the first experiment was an old condemned

eighteen-pounder. The gun was filled with water, and the force pump worked until the pressure reached seven thousand pounds to the square inch, when the water began to ooze through in minute quantities, forming mounds of white froth, which afterwards collected in drops, and fell off in small streams. When the pressure was raised to nine thousand pounds per square inch, resistance ceased, and the parts flew unexpectedly asunder. Some of the fragments were thrown off with great violence, and, though no one was seriously injured, several were involuntarily subjected to a specimen of the hydropathic treatment.

> "Alas! what perils still environ
> The men that meddle with cold iron."

Other old guns, and one of a more modern casting, were tried with similar results, in which the freaks were various and fantastic, the experiments showing a difference against the antiques of nearly three to one.

The trials with musket barrels indicated that proof under the hydrostatic press might perhaps be advantageously introduced, in connection with that by powder and ball, and particularly in testing rough barrels before the expense of finishing (which constitutes the principal cost) shall be incurred.

Captain Rodman's process for casting guns has been suggested by a principle demonstrated by Barlow, to wit: that the strain produced on any material by the action of a central force, varies inversely as the square of the distance from the centre. This demonstration is founded upon the hypothesis—first suggested, we believe, by Galileo—that the area of the cross section of the body, to which the force is applied, remains the same before and after the application of the force. If, then, r is made to represent the radius of the bore, R the radius of the exterior, b the increase of the interior radius, and B that of the exterior radius, we shall have the equation, $\pi(R^2-r^2)=\pi(R+B^2-r+b^2)$, or $R^2-r^2=R^2+2BR+B^2-r^2-2br-b^2$; but, as B and b are very small fractions of R and r, their squares may be neglected, and the equation becomes $BR=br$. It is evident that the strains produced on two pieces of the same material, will be proportioned to the increase in length divided by the original length of each respectively; hence, if $\frac{B}{R}$ is made to represent the strain on the exterior, $\frac{b}{r}$ will equal that on the interior, and if we multiply and divide the first member of the last preceding equation by R, and the second member by r, we shall have $R^2\frac{B}{R}=r^2\frac{b}{r}$, or the proportion $\frac{b}{r}:\frac{B}{R}::R^2:r^2$, or the strain diminishes as the square of the distance increases.

Now, to a gun perfectly free from strain, apply a central force until the interior is brought to the breaking strain, and let the radius of the bore be the unit of measure, and a represent the

tensile strength of the square unit. Then, with a gun of one calibre in thickness, the distance from the centre of the bore to the exterior will be 3, and the strain will diminish, by the above law, until that at the exterior will be $\frac{1}{9}$ of that at the interior, and the sum of all these strains will measure the effective resistance which the gun is capable of offering to the central force. To determine this sum, let it be represented by u, and let x be made equal to any variable distance from the centre, and we shall have, for the strain upon any one of the infinitely thin cylinders composing the gun, $a\frac{dx}{x^2}$; and for the sum of the strains, u=to the integral of $a\frac{dx}{x^2}$ $+c=\frac{a}{x}+c$. To ascertain the value of c, let $x=1$, and, by the hypothesis, the sum of the strains, $u=o$, when we find $c=a$, and $u=-\frac{a}{x}+a$; and, integrating between the limits, $x=1$ and $x=3$, we have $u=a-\frac{a}{3}=\frac{2}{3}a$; or, the effective resistance of a gun one calibre in thickness, is two-thirds of that, which half a calibre in thickness would offer, if the strains were all equal, as in tensile strain.

The above results suppose the casting to be absolutely free from strain, before the application of the central force, a condition which is only possible by allowing it an infinite length of time to cool. A gun never can cool without the surface falling below the temperature of the interior, and since iron diminishes in volume as its temperature decreases, a gun cast solid, and cooled from the exterior in a limited time, must be thrown upon a strain; the exterior being under a force of compression, while the interior is under one of elongation, and the more rapidly the cooling is effected, the greater becomes the strain.

It is known that the contraction, under equal reductions of temperature, is different, in iron of different qualities. Soft, gray iron, that contains a high proportion of carbon, contracts least; and that which founders term *high*, hard, light, and closegrained, and contains the least amount of carbon, contracts the most, other circumstances being equal. The contraction of the same iron is greater or less, according to the greater or less rapidity with which it is cooled. Every experienced founder is aware of this, and endeavours so to arrange his patterns that all the parts of the same casting may cool equally. In casting heavy wheels for machinery or railroad cars, in which the nave is more massive than the spokes or the rim, it is not unusual for the founder to remove the sand from the interior of the nave, and pour in water, to hasten the cooling of that part, so that it may keep pace with the cooling of the spokes and rim. If this precaution be neglected, the spokes may break before the casting becomes cold, or will be so strained, as to break from a slight shock afterwards. This result admits of a simple explanation. The rim and spokes, being less massive and cooling sooner, contract inward upon the nave, while the latter is yet liquid. The contraction, thus far, causes no strain, because

the liquid iron presents no resistance. But at the moment the nave becomes solid, its temperature is at the melting point, while that of the rim and spokes is much lower: consequently there must be more contraction thereafter in the former than in the latter. The nave, in its effort to contract its diameter, after the solidification of the rim and spokes, draws the spokes inward, and, as this movement is resisted by the rim, the latter is subjected to a force of compression, while the spokes are subjected to a strain of extension. The capacity of cast iron to resist compression, is six times greater than its capacity to resist extension; the spokes, therefore, yield to the tensile strain, and are pulled asunder.

In applying these laws to the casting and cooling of cannon, let us suppose a cylinder, of indefinitely large diameter and height, to be cast solid and cooled in the usual manner. It cools down until the exterior surface passes the point of fluidity, when a thin cylinder is formed by congelation, on the exterior, enclosing within it the liquid iron of higher temperature. After the lapse of a definite period of time, a second cylinder is formed within the first; meanwhile the first cylinder will have lost some portion of its heat, so that its temperature is still below that of the second cylinder. Next, a third cylinder is formed within the second, while the temperatures of the first and second have continued falling, so that there are now three cylinders, of three different temperatures. Let us suppose a continuance of these successive congelations, until all the liquid iron shall have become solid, and that at the instant this occurs, the first or exterior cylinder shall have cooled down to the temperature of surrounding bodies. The difference of temperature between the exterior, and the centre of the casting, will then be about 2700°. In such a casting, each layer forming at the point of congelation upon its predecessor of a lower temperature, it is supposed, that when the last portion of its liquid iron became solid, it would be entirely free and unstrained by contraction; but, as at this moment the exterior has cooled down to a temperature at which contraction has ceased, and the interior remains just at the melting point, 2700° higher, the contraction due to the latter, ($\frac{1}{61}$ part of its linear dimensions) is yet to occur in the centre, *after* the exterior has ceased to contract. The effect of such a contraction must be, to exert a strain of compression on the exterior, and one of elongation on the interior. The neutral line, or the part remaining unaffected by either strain, it is supposed, would be at about one-seventh of the radius from the exterior surface. The extent of contraction in a ten-inch gun, cooled, as above supposed, with a maximum difference of temperature, would be about two inches in length and half an inch in diameter; and six-sevenths of the latter would be in a direction from the centre towards the exterior, and tending to split open the gun.

The above supposes an extreme case, but it serves to explain

the law which governs the contraction of iron. There is no doubt of the fact, that cast iron is injuriously strained, more or less, by unequal contractions, when unequally cooled. What remains undetermined, is the exact measure of the consequences of such strains. In the extreme case supposed, the consequence would undoubtedly be to produce rupture in the interior of the casting; and in all heavy cannon cast solid, a strain of this kind, of greater or less force, is believed to exist, and so exerted as to assist the central force of the charge in bursting the gun.

At the risk of being tedious, we have entered into this discussion, in order to show the onerous conditions which are imposed upon the best metal, in the usual mode of casting and cooling cannon. Captain Rodman proposes to change the order of the cooling process, that the strain from contraction shall be opposed to, instead of co-operating with the central force of the charge, and that the causes which contribute to the weakness of the gun, in one case, shall, by reversing their effects, be compelled to minister to its strength in the other. How far he has succeeded in the attainment of this object, will presently be seen.

Two eight-inch Columbiads were cast July 30th, 1851. The iron used was from the Greenwood furnace, New York, and was melted in two furnaces, 12,500 pounds in one, and 15,500 pounds in the other. After melting, the liquid iron remained in the furnaces two and a half hours, exposed to a high heat, and was then discharged by separate streams, at the same time, into a common reservoir. It was withdrawn from this reservoir in a single stream, which, after flowing a few feet, separated into two branches, each leading to a separate mould, and filling both moulds at the same time. One of the castings was made solid, and cooled in the usual manner, without heating or covering the pit. The other was cast hollow, by means of a core formed on a tube of cast iron, through which a stream of water could constantly circulate while the metal was cooling. This core tube was water-tight, and closed at the lower end. The water was conducted to the bottom of the core through an interior tube placed in the centre of the core, and open below, ascending through the annular space between the two tubes, and discharged from the core, in a heated state, at a point above the casting. A fire was kindled in the bottom of the pit, directly after casting, and continued for sixty hours. The pit was covered, and the iron case containing the gun mould kept at nearly a red heat, the highest temperature it would safely bear. The water passed through the core at the rate of 150 cubic feet per hour. After twenty-five hours, the core was withdrawn, and the water thereafter circulated through the cavity formed by the core, at the same rate, for forty hours. The heat imparted by the casting to the water, and thus carried off, was found to be equal to 6° on the whole quantity of water used.

Two ten-inch Columbiads were cast August 21st, from the same quality of Greenwood iron. It was melted in furnaces containing, respectively, 12,000, 15,000, and 19,000 pounds of metal. The liquid iron remained in fusion two and a quarter hours, was discharged from all the furnaces, at the same time, into a common reservoir, from which it issued in a single stream, and was conducted to the bottom of the gunpit, whence it branched off, and entered the lower ends of both moulds at the same time. Both moulds were in the same pit. One piece was cast solid; the other was cast on a hollow core, and cooled within by a current of water, as before described. As the iron cases of the moulds were not large enough to admit the usual thickness of clay in the walls of the mould, the entire space within the pit outside of the mould was filled with moulding sand, and rammed. It was feared that the heat of the great mass of iron within, would penetrate through the thin mould, and heat the iron cases so as to cause them to yield, and allow the iron to escape from the mould. The exterior of the mould of the hollow ten-inch gun, therefore, instead of being exposed to heated air while cooling, as was the case in the eight-inch hollow gun, was surrounded by green sand, which produced a more rapid cooling of the exterior of the casting. Water was passed through the core at the rate of about 240 cubic feet per hour, for ninety-four hours, the weight of which was near 700 tons, or seventy times the weight of the casting. The mean elevation of temperature of all the water that passed through during the ninety-four hours, was about $3\frac{1}{2}°$.

In order to guard against any inequalities in the strength of the proof charges, the state of the weather, when fired, or, in other circumstances which might affect the endurance of the guns, the two guns making the pair to be compared, were fired alternately, one discharge from each, in regular succession, until one of them burst, when the firing of the survivor was continued alone.

The four guns were proved with two fires each: of the eight-inch guns, the first proof charge was twelve pounds of powder, one ball and sabot, and one wad; the second charge was fifteen pounds of powder, and one shell with sabot. The ten-inch guns were fired the first time with twenty pounds of powder, one ball and sabot, and one wad, and the second time with twenty-four pounds of powder, and one shell with sabot. They were then fired with service charges; those of the eight-inch gun, ten pounds of powder, with ball and sabot, and of the ten-inch gun, eighteen pounds of powder, with ball and sabot.

The number of fires made from each gun, including the proof charges, was as follows, viz.:

8-inch gun, cast solid, 73 fires;
8-inch gun, cast hollow, 1,500 fires;

10-inch gun, cast solid, 20 fires;
10-inch gun, cast hollow, 249 fires.

Each of them, except the eight-inch gun, cast hollow, burst at the last fire; and that remains unbroken, and apparently capable of much further service.

It is seen, that the endurance of the guns cast hollow, greatly surpassed those cast solid, in both cases; the endurance, in one case, being twelve to one, and in the other, twenty to one, and the hollow cast gun perfectly serviceable. It is unreasonable to suppose that this great disparity in strength could have been produced by accidental circumstances. The methods pursued to insure an exact equality of material in the guns of each pair, and for preserving an exact uniformity in the proof of each, seem to forbid the supposition that any unknown inequalities could have existed, either in the casting or the proving of the guns. The great difference of endurance must, therefore, be ascribed to the different methods by which the castings were cooled, and to this cause alone.

Some incongruous results were presented, however, in subsequent experiments upon the metal of the guns, which cannot be thus accounted for. In the several pairs, cast solid and hollow, the actual strength of the *iron*, in each gun of a pair, as measured by the testing machine, remained the same; while in the strength of the *guns*, as has been seen, in the same pair, there was a very wide difference. It thus appears, that while the new mode of cooling greatly augments the strength of the *gun*, it does not impair at all the strength of the *iron*. The explanation of these apparently discordant results, will be found probably in the laws which govern the contraction of iron, which have already been discussed.

Thus it appears, that, notwithstanding the ten-inch Columbiad, cast hollow, failed to exhibit the same measure of strength as the eight-inch gun, the signal superiority of the latter, by an unexampled endurance, over both calibres of those cast solid, must be regarded as a complete triumph of the Rodman process, and one that is to mark an epoch in the fabrication of heavy ordnance. The lower endurance of the ten-inch gun, may be ascribed to its greater bulk, causing an increase of contraction; to a disproportional and perhaps higher strain given by the charges of the ten-inch gun, than is given by those of the eight-inch, and to another cause, perhaps most influential of all, the imperfect manner in which the cooling of its exterior was retarded. It is to be regretted that the latter condition was so imperfectly fulfilled, as a doubt thus remains, whether the principle of reverse cooling, which proved so eminently successful in the eight-inch gun, is equally applicable to pieces of a larger calibre; and also, whether the

slow cooling of solid guns, by heating the exterior, will so reduce the strains of contraction, in iron of high quality, as will permit the use of the strongest iron in casting guns solid. These points of high importance being left in doubt, by the results of the late trials with ten-inch guns, it seems necessary that another experiment, of the kind suggested, should be made, in order to arrive at a positive conclusion. Should further trials with the ten or twelve-inch Columbiad, confirm the results furnished by the smaller calibre, we shall have attained the means of giving a perfection to the character of our seacoast armaments, that may bid defiance to any enemy.

The popular tendency throughout the world, is to enlarge the calibre of garrison artillery, and this is developing itself with prodigious rapidity. From the Revolution down to 1820, we made little or no progress in the extension of our military energies. Our fortifications, at the latter period, were encumbered with the same unsightly satires on the defences of our day, the same parodies on Falstaff's antagonists—artillery of buckram—as lined the lodge of palmettoes, from which Sir Peter Parker so ingloriously recoiled, with a splinter in his knee, and with his broad pennant unceremoniously precipitated from its pride of place, to the humble altitude of a jury topmast. Between 1820 and 1856, there is practically almost as wide a difference in the engines of war, as between the former date and the period when the "artillery" of a king's son could be carried by "a little lad." It might be a matter of interest to glance at the history of artillery, and trace the gradual steps by which it has emerged from the bow and arrows of Jonathan, to the formidable dimensions in which it now slumbers like a leviathan on the ramparts of Cronstadt, or thunders like a volcano before the walls of Sebastopol. We should see the weapon that felled Goliath give place to the crossbow. The *frondibalde*, with its unequal arms swaying to and fro, the *balista*, *catapulta*, *scorpion*, and a host of others, with names as dangerous to the organs of our articulation, as their powers would now be to our capacities for defence, would be found gradually supplanting their predecessors. Their achievements are now remembered only as consecrated by the genius of Archimedes, and by the Tyrian resistance to the insatiable ambition as well as the indomitable perseverance of Alexander. The two systems—the "*Tormenta*" of the Romans, and the "*Peacemakers*" of the moderns—tested their respective merits before the walls of Constantinople, in 1453. With an army of three hundred thousand men, and with a formidable array of the new artillery, one piece of which, cast in brass, carried, it is said, a ball of six hundred pounds to a distance of two thousand yards, Mahomet II. yet clung to the unwieldy and comparatively inert machines of the ancients. Borne along by the power of prejudice, attachment to old associations, and the

anti-innovating spirit of monarchy, the *tormenta* preserved a sickly existence during a hundred years later. Since 1587, there is no record of their use, and they may now be considered buried beyond the power of resurrection. In our own time, we have advanced from a 24-pounder, the maximum of 1820, to a 225-pounder in 1856, and it may be safely predicted, that the end is not yet.

With a body of infantry and riflemen unrivalled in equipment and organization; with a field artillery unsurpassed in the character of its guns, and all its appliances as perfect as skill and industry can effect; with officers thoroughly accomplished, and eager to carry the arms of the Republic, wherever the constituted authorities may direct, and with men ready to follow where those officers lead; we may be sure that, on any field, our flag will never be dishonoured. But it cannot be denied, that our sea-coast defences are miserably wanting in efficiency. Their armaments may compete successfully, perhaps, with such vessels as those with which the buccaneer, Cockburne, under the guise of a British admiral, entered the capes of the Chesapeake, furnishing an appropriate escort to a band of marauders, under General Ross, in a chivalric assault upon the inoffensive public and private buildings at Washington; but they ought not to be compelled to measure strength with such a fleet, or with vessels composing such a fleet, as Sir Charles Napier lately amused himself with in the Baltic. No gun—except, perhaps, at the gorges—should bristle from the parapets of our seaboard, smaller than a 42-pounder, and every fort guarding the ocean avenues to our cities, should have a large proportion of eight, ten, and twelve-inch Columbiads. The question whether cannon of the latter calibre should be provided for service, and at once, should require no further consideration. Satisfactory experiments have shown that such pieces may be safely used, and that a range of about three miles and a half, with shells weighing 180 pounds, may be obtained. These shells are of such thickness and weight, that no vessel of war has sufficient strength to resist their power; and with fortifications thus equipped, no naval armament hitherto used or known could support a contest. Even if vessels of sufficient stability for the service of such heavy guns, could be constructed, the effect of their fire would be incalculably inferior to that of the fort, in consequence of the difficulty and uncertainty in aiming, arising from the rolling and pitching of the vessel, to say nothing of the difference of resistance between wood and masonry.

The creation of the armament here proposed, is not the work of a day, nor of a year. From the last annual report of the present efficient chief of the ordnance department—given to Congress with the usual speed of the public printer, three months after its organization—we learn that, for the fortifications already constructed

and projected in the United States, 6,459 pieces of ordnance are required, of the following kinds and calibres, to wit:

Field and siege cannon,	268
Mortars,	269
Flank defence and block-house howitzers,	646
Seacoast and garrison guns,	2,957
Columbiads,	2,319

Of these, 3,912 are on hand at the various forts and arsenals, leaving 2,547 to be procured. As the fabrication of Columbiads is of recent origin, a very large proportion of those reported as now available, are doubtless of the smaller calibres, and it is to be feared that another large proportion—cast without much regard to the quality or treatment of the metal, and received into service with but little of the care and attention now bestowed upon such matters—are not to be relied upon with as much confidence as might be desirable. It follows, then, that the pieces wanted to complete the armament, are mostly of the heavier calibres, and that others may be necessary to replace the unserviceable now on hand. The process of converting the pig metal into the complete gun, is one of time and expense. The ten-inch Columbiad weighs 15,400 pounds, and the thirteen-inch mortar weighs 11,500 pounds. Though we have no satisfactory data for determining their resources and capacity, we think it is not probable that all the foundries in the United States, which have the means for casting heavy artillery, can turn out more than one hundred pieces per month. Hence not less than one million of dollars per annum, should be appropriated for the armament of fortifications, until every harbour on the Atlantic and Pacific coast is properly defended. Property amounting to a sum sufficient to encircle the entire country with such an armament, may now be destroyed in thirty minutes, by the entrance of an enemy's fleet into the harbour of Boston, New York, or Baltimore. The expenditure involved, therefore, becomes the wisest kind of economy. Demagogues may rave at pretended extravagance; the serene dreams of fogyism may be temporarily perturbed, and red-tapedom may stand aghast at so portentous an innovation: but what is the object of government, if it is not judiciously to expend the money of the people, for purposes solely and exclusively beneficial to themselves? Give to the harbours of Boston, New York, Philadelphia, Baltimore, Charleston, and Savannah, the armament here indicated, and which every consideration of patriotism and of policy, with reference to the present facilities for attack, imperatively demands, and which, with an overflowing treasury, we are able to supply, and the slumbers of our children need never be disturbed by the roar of hostile artillery; and our citizens, in war as in peace, may pursue their usual avocations, under the ample protection of our military fortifications.

Art. III.—THE MEN OF SCIENCE IN THE MIDDLE AGES.

Truths and Fictions of the Middle Ages: The Merchant and the Friar. By Sir Francis Palgrave, K.H., &c. London: J. W. Parker. 1844.

Aur. Philip-Theoph. Paracelsi Bombast ab Hohenheim, Medici et Philosophi Celeberrimi, Chemicorumque Principis Opera Omnia Medico-Chemico-Chirurgica, tribus voluminibus comprehensa. 3 vols. Geneva: J. A. & S. de Tourne. 1658.

Athanasii Kircheri, e Soc. Jesu, Mundus Subterraneus in XII libris digestus. 2 vols. Amsterdam: I. J. & E. Weyerstraten. 1665.

Musæum Kircherianum, a Philippo Bonanni, Societatis Jesu. Superiorum permissu. Rome. 1709.

L'Alchimie et les Alchimistes, ou essai historique et critique sur la philosophie hemetique. Par Louis Figuier. Paris: Victor Lecon. 1855.

History of Chemistry. By Thomas Thomson, M.D. 2 vols.

A late writer says: "A man's hobbies are his spiritual vetebræ, composing the backbone and marrow of his character. A man with a hobby or two, sleek and well kept, is well to do in his mind; is to that extent, although it may be in no other respect, mentally respectable." We think that we shall not be very heterodox if we declare that the truly great man is he who brings to bear the full power of his intellect, the knowledge that has been gained by a study of the world and its varied lore, and his undivided energies, to the nurture and cultivation of one idea, or one train of ideas—his hobby, if you so please to call it. How many men have ever borne the credit of being encyclopædists, thoroughly versed in the various arts, sciences, and other branches of knowledge which man's far-reaching intellect enables him to compass? How many men have shown the comprehensive knowledge and encyclopædic attainments, which their biographers have delighted to claim for the Scotch Crichton or the German Goethe? Their names occupy but a small space on the historic page, even though the historic gleaner searches the fields of classic Italy and Greece, the cloisters and universities of Germany, the refined circles of Paris, and the hardworking colleges of Britain and Ireland.

The field of knowledge is too extensive for the labourer. He must needs select some corner, whose properties he can study carefully, and whose resources he can swell up to such proportions that all the world shall acknowledge him as a faithful and trusty labourer. By such a course, he may find a hobby, feed the animal with that which shall best contribute to the due development of its physical proportions, learn to curb and restrain any tendency it

may have to turn to the right or left of the straight road, be affectionately welcomed by it after any excursions from its side, and by its means move briskly forward, while the crowd is slowly plodding along the pathway of life. He acquires a high position among his fellow men, because his endeavour has been to perfect himself in one department of knowledge, rather than to acquire a slight insight into the varied departments of human study. With such an one, the motto, *non multa sed multum*, demonstrates, in a peculiarly striking way, its peculiar value and significance.

Hobby riders do not belong alone to this age or to modern history. As far back as the record extends of man's labours, we find that from time to time he has, Prometheus-like, stolen from the chariot of the sun of truth, sparks of science which have been afterwards kindled by the vigorous exertions of his brethren into a full blaze, and have instilled a genial warmth throughout the length and breadth of the civilized world. His own eyes have been often dazzled by the brilliance of the very sparks his industry has enabled him to snatch from the altar of science. He has been blinded by the quantity of light they pour forth, so that he could not look abroad and discover what dark recesses are thus rendered light, and what caverns are brought out into the full light of day. He is not able to perceive the thread which will lead him out of the Cretan labyrinth of his perplexities, though it lies directly by his side. The pupils of his eyes were never intended to admit so full a blaze of light. Their greatest capacity is required to collect even the feeble, straggling rays of light, which, wandering through the blackness of darkness, serve but to make it, so to speak, more visible. Thus we often find the discoverer of light has been blinded by his own discovery; is ignorant of its importance; and he rides along blindly on his hobby, perchance to make more discoveries, or perchance to end his career, and to be laughed at by silly fools, because he cannot appreciate the important results of his own labours. This treatment of the world seems to us most unkind and ungenerous. Our eyes are gradually opened with capacities to withstand the intense glare. We are born into a world irradiant with the light of prior discoveries, but the great man has suddenly found himself, like Minerva from the reflecting brain of Jove, in full panoply, first of all men, in the fields of light and the vales of beauty. We should not wonder that he knows not where to turn, or what to do; and still more must we learn to repress the smile of scorn, if perchance we find him turning back towards the obscure paths he has but just issued from, and wilfully, as it seems, though in truth ignorantly, deserting the very acquisitions he has made.

In our age, we are too prone to look back upon the fathers of science as mere dreamers in their days, seers of visions which cannot be made perceptible to the eyes of other men. In fact, we

look only at the obscure paths through which they groped, and ignore a knowledge of the truths which they discovered, because, forsooth, they themselves were ignorant of the full value of these truths. We can understand that he, who first applies an important principle to the practical purposes of life, is a benefactor to his race, but fail in comprehending the elevated position of the first enunciator of this principle. The possession of the Promethean spark demanded all the cunning and craft of the son of Japetus, united with the commanding intellect of the blue-eyed goddess of wisdom. By an union of the two, the daring Prometheus bore away the fire from the chariot of the sun. When this was once obtained, any country lout could, with a moderate pair of lungs and the refuse wood of his neighbourhood, kindle a fire, whose light would exhibit his countenance to the staring gaze of the crowd.

We think a rich mine for study is to be found in the consideration of the peculiarities and hobbies of some of the scientific men of the middle ages; and accordingly propose, in this article, to select such as may have been most identified with the progress of scientific knowledge. We shall meet thoughts that may seem ludicrous. These will not prove the mental inferiority of their authors, but will only show how involved in mystery is the first discovery of every truth.

Few names on the pages of history shine with a more resplendent lustre than does that of an humble monk, of the Franciscan order, who lived and toiled in the thirteenth century. Every one has heard of him, and most have associated Roger Bacon's name with the mystic and the obscure. He has been looked upon as a man who had, perchance, sold himself to the enemy of souls, had signed the contract with his own blood, and had, as must be presumed is true in the case of all who deal with such personages, been cheated in the sequel; a man who had dreamed over the transmutation of metals, and expected to acquire a knowledge of the wonderful liquid which should preserve man in perennial youth; a mere worker among pots and pans, alembics, gallipots, and crucibles, and a dreamer of impracticable things; one who cloaked himself in the robes of religion, in order that he might all the better work out heathenish mysteries and pagan iniquities. Such are the crude and ignorant opinions, largely prevalent even among reading men, with reference to Roger Bacon. Let us see how they are substantiated by the record.

Born in the year 1214, at Ilchester, in England, Bacon was soon noted for his attachment to study of all kinds. His attention was naturally directed towards the monastic orders, as they contained the chief stores of learning in the world, and he became a Franciscan, at an early age. His studies were chiefly carried on at Oxford and Paris, where they had the effect of continually

placing him under the ban of suspicion with his brother monks. Viewed by the unprejudiced eye of the present, he seems to have been a laborious student, instead of a cultivator of magic, the author of a treatise in which the absurdity of its claims, or indeed of those of any other science not based on experimental proof, was clearly exhibited. The age was, however, not prepared for him. The effects which his knowledge of the simple powers of nature enabled him to produce, were so startling to the unfledged intellectual capacities of his own day, that they were only able to account for them by declaring that there must be collusion with some supernal influence. If he caught the rays of light which proceeded from a distant object, on the object-glass of his telescope, and caused their concentration in such a clear image that distance seemed to be annihilated, it was an effect unintelligible to the people: the theory of the instrument could not be comprehended; and it was a bold cut of the Gordian knot to declare that this was all effected by magic. If a mischievous lay-brother and assistant in his chemical labours, should perchance fire some explosive compound, during the absence of the friar, ignorance often fancied that it saw, in the clouds of smoke and sulphurous fumes produced by the explosion, his dignified form and grave face, sobered over by years of reflection, whisked away in the arms of a demon. Many were even to be found, and not out of his order either, who lamented the fate of those "who dabbled with the accursed studies of mathematics, forbidden as the clergy's scandal and shame." Some could testify that they had seen his cowl attached to a neighbouring spire, and others, to their impressions that there was a general disturbance of the laws of nature, and that the king of darkness had come to take his servant home—a testimony which was about as credible as that of many, in our own day, concerning the wonderful manifestations of spirits, in their singular childish propensities for rapping on tables, moving various articles of furniture, and performing sundry feats, in which they exhibit an inferiority to the commonest jugglers.

A small tower, at Oxford, was occupied by the friar, for the purpose of retirement, when he wished to prosecute his studies. In London, he lodged at the Franciscan monastery, which is now known as Christ's Hospital. He was attended generally by a lay brother, if Sir Francis Palgrave's conjecture be correct, whose name, Bungay, is still connected in England with superstitious accounts of the olden times. Let us glance into the Oxford tower occupied by the friar. Before entering, we shall probably see some curious pieces of machinery pointed at us from the tower, and looking, to our modern eyes, as though sentinels were about covering us with the muzzles of deadly six-pound cannon. We need not fear, however, since they are only the rude forms of spy-glasses, which the worthy man of science is employing to scan the

appearance of his visitors. His knowledge of lenses in general, and especially of those with a convex form, is admitted by all scientific writers to have been very great; and we should not be surprised to see instruments, constructed out of them, in his tower. Figuier, in his treatise on "L'Alchimie et les Alchimistes," thinks it probable that he may have been familiar with the telescope.

We enter rooms where, in student-like confusion, may be found ancient books on metaphysics, theology, alchemy, and physics, remarkable for their rarity and their value, in which many things are described that the present age has but lately rediscovered. The descriptions are given in abstruse terms, which were adopted because it was the style of the early writers on such subjects, or because it was not always well to express too plainly any ideas that seemed to contradict the superstitions of the times. Alongside of these books, we find marks of the mechanical and chemical skill of the occupant of the apartments,—here a curious piece of mechanism, and there a quaintly-shaped alembic, whose beak, attached to a still more quaintly-shaped worm, has just given passage to the vapour of some potent liquid obtained in the process of distillation. Among the pans and crucibles, which are piled alongside of the furnace in the inner room, are many that smell strongly of sulphurous compounds, and cause the ignorant to tremble with fear, lest all which has been said of the friar's association with the infernal powers may prove, alas! too true. Sir Francis Palgrave* pictures a piece of machinery as seen in the imaginary visit of Marco Polo to the place we are now sketching, which we copy. "A shrine-like temple appeared, the pediment supported by miniature Doric columns, before which was placed an altar in antique form, covered by tiny faggots of cedar, heaped as for the sacrifice, and kindling into a flame. Shortly afterwards, when the fire was in full blaze, the door of the temple opened, hissing dragons protruded forth, and sparkling jets ascended from the vases on either side, shooting higher and higher as the temperature increased. Hard by was seen a brazen ball, rising and falling in a cylindrical tube, its gravity counteracting the forcible gusts of aqueous vapour which issued by fits from the receptacle below. On the same range, a whirling sphere revolved with extreme rapidity, enveloped in the white clouds of steam, by whose generation the motion was produced." We hear the voice of the amiable enthusiast, describing the expansive power of the vapour of water, or steam, as the cause which produces the singular movements of this scientific plaything, and prophetically announcing it as, in the future, the motor "of mighty engines destined to alter the whole frame of human society, nay, almost to change the physical aspect of the globe."

* The Merchant and Friar, p. 216.

We have at last seized hold of one of the friar's hobbies. Let us see how he rides it. Let us hear him describe it. If we smile at the singular expressions employed for the purpose of concealing rather than conveying his meaning, we must nevertheless perceive that he has ridden his hobby, in imagination at least, to the goal, and has fully appreciated the rewards which attend such a successful race.* "No sail is spread, no mariner is toiling at the oars; yet call but the secret powers of Sol and Luna into action, and I behold a single steersman sitting at the helm, and guiding the vessel, which glides like a spirit through the waves. And the loaded chariot, no longer the encumbrance of the panting steed, darts on its course with fiery force and resistless rapidity. Let the pure and simple elements do thy labour. Bind the eternal enemies; yoke them to the same plough. Make the contraries unite; teach the discordant influences to conjoin in harmony. Aid the antagonists to conquer each other; and do thou profit by their mutual victories. True are my words, though spoken in parables. Open the treasury of nature; above, below, around you, are the keys." * * * "Whatever we now effect by human or animal strength, by nerve and muscle, or by the action of stream or gale, will be operated by a servant who will never tire, a slave who will never rebel, a vital force which will never slacken, never slumber, never rest, and susceptible of indefinite increase. Easily as the beldame twines the single thread, ten thousand spindles may be made to revolve in ceaseless whirl, through night and day. Self-moving, the loom will cover the mazy web. The hammer, which even the arm of Cyclops could not wield, vibrates like a reel through the yielding air." With such language, or other, to like effect, we may well believe the scientific man of the thirteenth century discoursed of the meaning of this discovery, and the countless benefits with which it was pregnant.

On more close examination of the rooms of the friar's tower, we shall find a secret apartment, where the dead body of a man is extended upon a table, bearing marks of the careful dissections of an anatomist. The mysteries of the architecture of the animal were undoubtedly examined into by Bacon, long before Andrew Vesale attracted the attention of the world, by his dissections, to this most invaluable mode of learning "how fearfully and wonderfully we are made."

But, while we are lingering with honest curiosity near the anatomist's table, we hear a rumbling sound in the furnace room, the walls totter, the roof is removed, and the whole superstructure is destroyed. How has our air-castle been demolished? Is there not some cause for fear, lest diabolical agency has been invoked

* The Merchant and Friar, p. 41.

for some dark purpose, by the friar? The probability is, that waggish scamp, Bungay, has been trying the properties of some powder, which he has seen the friar mixing with great care, and the result of Bungay's experiment is the destruction of the laboratory of the man of science.

The manufacture of gunpowder was another of Bacon's hobbies. Its discovery has been claimed for the Arabians by some, for Magnus Græcus by others, and for a friar, Ferrarins, who lived in the early portion of the thirteenth century, by others. We have no reason for believing that the method of granulation, and a due appreciation of its wonderful powers, have been understood by any one before Bacon's day. In the following description,* his appreciation of the discovery is clearly manifested: "For sounds like thunder, and corruscations like lightning, may be made in the air, and they may be rendered even more horrible than those of nature herself. A small quantity of matter, properly manufactured, not larger than the human thumb, may be made to produce a horrible noise and corruscation. And this may be done in many ways, by which a city or an army may be destroyed, as was the case when Gideon and his men broke their pitchers, and exhibited their lamps; fire, issuing out of them with inestimable noise, destroyed an infinite number of the army of the Midianites."

It is a fair question, if this be a true exhibit of what Bacon knew and what he did, why is his memory surrounded with so much mystery, and why were not his discoveries made available during his own lifetime? The answer is, however, to be found in what we have already said, that the age was not prepared for the reception of any discoveries that might tend to its advancement or improvement, and in the stern opposition with which all his discoveries were received by the other members of his order. He endeavoured to conceal his own inventions, so as to avoid the charges of magic, which these brother Franciscans were too ready to bring against him. We even find, on examining the record of his life, that accusations of this kind were so plausibly made, at one time, that he was thrown into prison and detained there for years, before his own fair fame was again recognized by the order. The rewards of all his labours were not wealth, ease, and honours, but poverty, trouble, and suspicion.

And so our sketch of this great man, whose intellect the world is only now learning to appreciate and esteem as equal to that of the other Bacon, who, in another and more favouring age, was crowned with glory and honour, must close by exhibiting him unappreciated and unesteemed, but none the less a shining light amid the darkness of the past, whose brightness reaches even to the present time.

* Thomson's History of Chemistry, i., 36.

If we pass over a few centuries, and glance into a chamber occupied by one of the sixteenth century, we shall see that hobbies were also then employed for useful purposes. Let us now see those which were then the especial delight of one of the greatest of his profession in this century. Seated at a table covered with the lore of the past, may be seen one whose professional robes mark the incumbent of the chair of medicine and surgery in the University of Basle. Scarce thirty-three winters have passed over his head. There are evident indications of a disrespect for all the binding obligations of temperance societies around him, and his flushed cheeks and inflamed eyes tell the tale for one who has been tarrying too long with the wine cup. A pile of manuscript lies before him, in which he has described philosophy, astronomy, alchemy, and magic, as the four columns on which he supports the superstructure of medicine. The preface is yet to be written. He seizes the pen, and mutters to himself as he writes the following, which remains even to this day, as a curious specimen of vain glory, in bad Latin. "I reject you as sham doctors, ye who are not of the true seed and genuine descent; ye are cut off, because ye bear yourselves more magnificently and loftily than is your right. * * Ye shall follow me, and not I you. Me, me ye shall follow, thou Avicenna, thou Galen, thou Rhazes, thou Montagnana, thou Mesve. * * I shall be monarch; the monarchy shall be mine. * * Boldly I proclaim, that the hair on my head is acquainted with more knowledge than all your writers. Moreover, the buckles of my shoes are more learned than your Galen or Avicenna. My beard has more experience than your whole academy. I long for the time when ye swine may be dragged through, and rolled in the mire."*

We hear our readers ask, what interest this drunken fool can have for them; why should we linger for a moment with a man who raves in such a senseless way?

> "In the name of all the gods at once,
> Upon what meat doth this our Cæsar feed,
> That he is grown so great?"

Why should we picture to ourselves the form of this winebib-

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* Paracelsi, Opera i., 183. "Me, me, inquam, sectabimini: tu Avicenna, tu Galene, tu Rhazes, tu Montagnana, tu Mesve. Non ego vos, sed vos me sectabimini. . . . Hæc merda vobis edenda est. . . . Audaciter enim profiteor, quod lanugo occipitii mei multo plura sciat, qua scriptores vestri universi. Quin et calceorum meorum annuli doctiores sunt ipsissimo vestro Galeno vel Avicenna. Et barba mea experientiæ majoris est quam Academiæ vestræ universæ. Tempori illi inhiabo quo porci vos per lutum tracturi et versaturi sint." This, along with a vast deal that is too vulgar to be transcribed, is to be found in the Præfatio in Paragranum Liber, published by De Tournes in 1658. The style, on all occasions, of Paracelsus is bad, but sometimes it descends to the lowest conceivable depths of filth and vulgarity, and in none of his writings more so than in this Paragranum Liber.

ber, immediately after the honest and noble form of Bacon? For the simple reason, kind reader, that he is a notable character in the history of science, and has effected some good for the world, while riding his hobbies. An examination of the latter will show the benefit they have been to the world. First, however, let us get his name, with the accompanying titles he delighted to assume, and then examine into the nature of his studies.

Philippus Aureolus Theophrastus Paracelsus Bombastes de Hohenheim, "physician, philosopher, and chief of chemists," was born in the year 1493, near the city of Zurich. He obtained from his father, whose profession was that of medicine, some knowledge of the so-called sciences of alchemy and astrology; and this was speedily put in practice on the credulous citizens of all the towns that he visited during the period of his youth. He had other instructors also in the science of alchemy, including many of the ecclesiastics of the day, and particularly John Trittheim, abbot of Spanheim, whose *Wunderbuch* remains to the present day as a singular mixture of religion, superstition, and glimmerings of science. Aided by a naturally shrewd disposition, a faculty of closely observing the relations of cause and effect, and a careless boldness as to the *materia medica* employed in his practice, Paracelsus soon collected a host of partizan followers, who trumpeted his claims to public notice and reward on every breeze that moved across the land. In those days, when the advertising columns of the daily newspaper did not afford an opportunity for the quack to swell himself into the hugest and most imposing form before the public; when the universal application of stencils, by way of decorating our buildings with kind invitations to take somebody's sugar-coated pills or never-failing liniment, was not understood; accounts of wonderful cures were communicated from one to another, unimportant additions, in themselves considered, being added at each transfer, swelling, however, at length, to such enormous magnitude, that they entirely overwhelmed and concealed the little nucleus of truth on which they had accumulated. By some such method, Paracelsus soon became notorious.

The more, however, we examine Paracelsus's character, the more firmly shall we be convinced that vanity, pretension, and drunkenness were mere spots defacing it; and that, although there is much to be seen in it worthy of all blame, yet he possesses a hobby which elevates him to a position where he can command our respect and esteem. Prior to his time, the practice of medicine consisted of mere gropings in the dark after some course of procedure in the treatment of disease, which might probably eventuate in cure. Science and experiment were rejected as proper tests of the value of treatment, and the authority of the past, no matter how ridiculous and childish its determinations had been, was recognized as the sole rule for the medical man.

His medicaments acquired a wondrously singular character, not exhibiting

> "about his shelves
> A beggarly account of empty boxes,
> Green earthen pots, bladders, and musty seeds,
> Remnants of packthread, and old cakes of roses,
> Thinly scattered";

but a strange mixture of articles from the three kingdoms of nature, destined to undergo singular decoctions, which should furnish liquid results that could only be compared with the famous brimstone and treacle with which the boys were kindly furnished, once a week, by the amiable spouse of Mr. Squeers, of Dotheboys' Hall. Such practices met the contempt of Paracelsus. They were thrown aside for a more rational method. He says: "I have in the beginning, just as much as my opponents, thrown myself with fervent zeal on the teachers; but when I saw that nothing resulted from their practice, but killing, death, murdering, laming, and distorting; that the greatest number of complaints were deemed by them to be incurable, and that they scarcely exhibited anything but syrups, laxatives, purgatives, and oatmeal gruel, pumpkins or citrons, jalap and other such messes, with everlasting clysters, I determined to abandon such a miserable art, and to seek truth by some other way. I considered with myself, that if there were no teacher of medicine in the world, how would I set about learning the art? No otherwise than in the great open book of nature, written with the finger of God. This I now studied, and the books of the physicians no longer; for every pretender has his own hobby; and who can here obtain any result, or discover the truth? I am accused and denounced for not having entered in at the right door of art. But which is the right one? Galen, Avicenna, Mesve, Rhazes, or honest nature? I believe the last! Through this door I entered, and the light of nature, and no apothecary's lamp, directed me on my way."

Here was a man who dared to think for himself, in despite of the tendency of the age to follow some authority of the past. He resolutely determined to examine the nature of disease, and its proper remedies, with nature for his guide. Assiduous diligence as a student of her mysteries, was repaid by discoveries which are, to this day, a benefit to the medical profession, She ever honours those who prove themselves anxious to penetrate the arcana of her storehouse, unfolding before them the uses and beauties of much which is locked up in impenetrable darkness to the rest of the world.

If we look at Paracelsus, mounted on his hobby, jogging along the pathway of life, we see him cheered by the thanks and rewards of eighteen princes, whom he had restored to health after the

physicians of his day had acknowledged their inability to aid them; promoted to professorial honours through the aid of the amiable Œcolampadius; thanked by Erasmus of Rotterdam for saving the life of Frobenius his friend, and addressed by the former in a letter,* preserved to this day, as a most skilful doctor of medicine; petted by the rich, and worshipped by the poor! All this prosperity seems to have been too heavy a burden for him to bear. We need not wonder that the man's vanity, fed almost to satiety, developed itself in the most absurd pretensions; that he indulged in ridiculous boastings as to the infallibility of his remedies; and that, finally, obloquy and disgrace befel him, when the world could no longer tolerate his erratic couduct. Is it not proverbial, that prosperity is more difficult to bear than adversity?

We turn over with astonishment the folios that are yet extant, containing the writings of this extraordinary man, finding there the results of his studies of nature, intermixed with queer conceits about the influence of the stars on disease, the nature of pestilence, the preparation of the philosopher's stone, the spirits which exist in mines, and the *elixir longæ vitæ*. All these are discussed with equal volubility, in Latin that Cicero would have hardly recognised as a dialect of his native tongue.

The freedom of thought and opinion introduced by Paracelsus, into the medical profession, have developed themselves, from the young shoot into the hardy and sturdy trunk, which has sent forth widespreading branches, covered with evergreen leaves of beauty and blossoms whose balsamic fragrance extends far and wide, wherever suffering and disease are visiting the sons of men. What if a deadened limb occasionally appears on the healthy trunk? Is it not manifest that the life of this portion has been destroyed by some pernicious insect, which has infused its venom beneath the bark? What if, on the side of the trunk not exposed to the rays of the sun of truth, there should grow the vile fungus and the deadly parasite? The same elements may form pernicious as well as beneficial compounds, should untoward agencies affect their union. What if the foliage is for a season destroyed by the

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* Rei Medicæ peritissimo Doctori Theopraste Eremitæ, Erasmus Rotterdamus S. Non est absurdum Medico per quem Deus nobis suppeditat salutem corporis, animæ perpetuam optare salutem. . . . Frobenium ab inferis revocasti, hoc est, dimidium mei: si me quoque restitueris, in singulis utrumque restituis. Utinam sit ea fortuna, quæ te Basilicæ remoretur. Hæc extempore scripta, vereor, ut possis legere. Bene Vale.—*Erasmus Rotterdamus suapte manu.*

This letter of Erasmus also contained an account of some symptoms in his own case, respecting which he wished the advice of Paracelsus. To which the latter responded by giving an opinion, by no means intelligible, concluding with: "Si optime Erasme mea praxis specifica T. excellentiæ placuerit, curo ego et habeas et Medicum et Medicinam.—*Paracelsi Opera*, i., 485.

crawling worm, and the tree be thus temporarily deprived of its beauty? The life force will again show itself, by producing other foliage of a deeper and more lasting green, since its roots are deeply laid in the earth, and draw their sustenance from nature's storehouse. What if its first true cultivator was one of the character of Paracelsus? The products of nature's garden never depend on the moral character of the gardener, but on other qualifications. These qualifications Paracelsus possessed, and modern medicine may be said to date from his period as an active, vigorous, and important profession.

About the commencement of the following century, we find Athanasius Kircher, one of the most distinguished scientific men of the middle ages, whose labours were almost entirely devoted to the cultivation of the experimental department of natural philosophy. From the portrait which has been handed down to our times, we glean these data as to the appearance of this savan: a man of commanding height and strong constitution, which served him well through a life of seventy-nine years, with broad and expansive forehead, large full eyes, beaming with quick intelligence and scrutinizing inquisitiveness, large mouth with compressed lips, denoting unusual determination and energy, and neatly trimmed beard and moustache. We are disposed to like him at first glance. Here is an honest, bold, and determined student of nature. The inscription below the portrait, written by Jacobus Albanus Ghibbesim, M. D.—

> "Frustra vel Pictor, vel vates dixerit, HIC EST:
> Et vultum, et nomen terra scit antipodum;"

implies that his life was by no means sedentary, and we are not astonished to find, that he travelled much, and collected an immense museum of curiosities, which he transferred to the college at Rome, containing objects of art and curiosities of nature, statues of gods and instruments intended for use in sacrifice, monuments and monumental inscriptions from pagan and Christian periods, marine plants from the waters of many parts of the world, mathematical instruments, coins, and a large collection of shells. These are the objects which have been collected in the learned man's wanderings through the world. A large folio, *Musæum Kircherianum*, published at Rome in 1709, contains a full description of these, written by Father Philip Bonanny, S. J. But the speculations which they gave rise to, expanded themselves, under the prolific pen of Kircher, until thirty-six huge volumes (twenty-two of which are in folio) were required to hold them. "*Bonus Homerus aliquando dormitat.*" At times the good father seems very drowsy over his subject, but there is always an honest love of

nature pervading all his writings, so that we forgive the somnific tendency.

We confess that there is some little difficulty in getting at what may have been the special hobby of this learned Jesuit, though we may not be much amiss if we borrow the words of Ennemoser,* and say, that it was the purification of "the study of nature from superstition, credulity, and erroneous views." Could a bolder idea have entered the mind of man? could a nobler steed be procured for our adventurer, along the highways and byways of the world? Could a greater task be undertaken by man? To remove the obstacles which superstition, the huge and swarthy giant, whose very form seems to hide the sun of truth from our gaze, and to prevent its rays reaching those objects we are anxious to investigate; to remove the obstacles which superstition has placed in our pathway—surely this was no easy task. Nor was it to be considered in the light of a mere quixotic attack on error, such as the knight of La Mancha had made on the windmills; because victory was a possible issue for the combatant. Even though he should perish in making the assault, the very fact of his boldness would stimulate others to follow, and the corpse of the fallen hero would serve as a bridge on which others could cross the moat that surrounds the castle, where both ignorance and superstition had taken refuge. The example of one such man, when the world is prepared to understand it, will fire up the energy and zeal of a host of warriors. For there is an innate repugnance, in the soul of man, to anything like servile homage to that which is ignorant and superstitious; and it is only paid when the mind of man has been kept enshrouded in darkness. Let but one gleam of light fall fully on him, and he will rise, throw off his shackles, and hurl the stupid tyrants from their throne.

In looking over Kircher's writings, we meet strong proof of that idea of Solomon, that there is nothing new under the sun. For instance, we are now discussing the probabilities of the correctness of the evidence advanced by the Kane expedition, as to the great open polar sea. Speculation is rife as to its origin, and theories are springing up on all sides with reference to the causes which may produce so large a body of water in a liquid condition, in regions where icebound shores have only been expected. In turning over the pages of Kircher's *Mundus Subterraneus*, our eyes rest on an engraving entitled, *Poli Arctici Constitutio*, where we perceive the old philosopher has delineated an open sea, into which, through channels between North America, Tartary, Spitzbergen, and Greenland, the Atlantic and Pacific oceans pour their waters, and, dashing round, form a spiral current, whose apex is

* History of Magic, ii., 264.

the pole itself, into which, as a vast vortex, they ever empty. His description of this vortex is very singular and ingenious. He fortifies his position by a number of arguments, appeals triumphantly to the fact that, although scarcely a corner of the earth remained then unvisited by the bold navigator—(*ut vix terræ marisque angulus supersit, qui non detectus exploratusque sit*)—still no one had been able to penetrate beyond the eightieth parallel of latitude. *Quid non tentavit Davis? quid non Hudsonus?* By way of closing the argument, he quotes Giraldus Cambrensis,* that if a ship should by chance come into this vortex, it would be seized and drawn along with such violence, that it would pay the penalty by being engulphed and utterly destroyed. He claims that his reasons are sufficient to explain the existence of this sub-polar vortex, into which all the waters of the sea are poured, and, after undergoing a circulation in the interior of the earth, incomprehensible to man, they again pour forth *from* the south pole, forming currents there of such magnitude as to prevent the possibility of any navigator ever approaching that point of the earth. All this is singularly worthy of our notice, as the first attempt to account for the existence of oceanic currents, which have since been so closely studied by scientific navigators, and have in no country been more fully and thoroughly investigated than in our own. If the first attempt at an explanation of any phenomena of nature be unsuccessful in itself, yet, since it challenges attention from men of science, and elicits careful and laborious study, it deserves our most sincere thanks. Here we find the real value of Kircher's labours consists in the attention they attracted to subjects which, before his day, had been passed by unnoticed. Mankind learned to examine "the things which are seen," while they preserved their faith in the existence of "the things which do not appear." Indeed, "the extent of Kircher's labours has been the greatest obstacle to the due appreciation of them."

Amid all this study, extended over so large a domain, we must not be surprised at quaint conceits and illogical conclusions. When the learned man speaks of stones, and collects for our examination reliable accounts of gems and various fossils that have been found over the globe, we must not be surprised if his reasoning powers sometimes ramble with great carelessness over the fields of conjecture, nor be astonished when he attempts to account for the singular appearances which are presented by some gems, by the statement that† "sportive nature, since she cannot attain to the

* In Boreali parte invenitur immensa quædam maris Vorago, ad quam a remotis partibus omnes videntur moveri fluctus, tanquam ex conductu confluunt et devorantur, qui in secreta naturæ penetralia se ibi transfudentes quasi in abyssum vorantur. Si itaque Navis sua mala forte in eam incideret, tanta vi rapitur et attrahitur, ut eam statim irrevocabilis vis voracitatis absorbeat.—*Mundus Subter.*, i., 159.

† Mundus Subterraneus, ii., 27.

vegetative and sensational faculty in the mineral kingdom, hath done what she could; that is, since she could not give them vitality and feeling, hath thought proper at least to give them the form of all things in the world, and to have delineated these with an ambitious pencil; for who shall closely consider the constitution of stones, marbles, and gems, * * but will clearly see depicted on these, by a certain wonderful carefulness, artificial instruments of all kinds, sickles, saws, grappling irons, anvils, lances, banners, crosses, circles, panniers, compasses, and geometric figures beyond number, triangles, squares, parallelograms, cubes, rhombs, and prisms of all kinds." He then goes on to state that nature does not exhaust her powers with these figures, but that she depicts also the stars on stones, to the envy of the painter; delighting in the sea, and cities, and woods, and rivers, she also represents them; and not stopping here, she invades the prerogative of the vegetable economy, and delineates every variety of flowers, roses in the entrochus, and lilies in the encrinites; presents us the forms of all varieties of animals, and, lest she might seem to have neglected the most noble form of all, exhibits the human figure in all its parts, sometimes collected together so as to form the perfect man, and at others, with a head here and limbs in other places, not carved on the superficies of the rock, but formed in its very substance; and lastly, nature, having advanced still further in her pictorial representations, passes beyond even her own bounds, and angels, with other celestial beings, have been found accurately and reliably represented on stone; all of which, says the good father by way of proof, will be apparent from "the following figures." Then follow some wonderful figures, and one must be the veriest infidel who does not give absolute credence to Kircher's statements, after he has seen the engravings of the original figures on which this idea of nature's pictorial abilities is founded. True it is, that a naturalist, like Agassiz, would account for the forms of flowers, and fishes, and various kinds of animals, which are occasionally found in certain geologic strata, by saying that they were the casts of the objects themselves, and that, as these decayed, their particles were replaced by particles of some mineralizing substance, until at length the whole became stone. True it is, that schoolboys and schoolgirls are taught at present to know what fossils are, and how the geologist argues as to their formation; how Hugh Miller, and Lyell, and Agassiz, have their peculiar hobbies with reference to the age of the world in which they were formed, and how gracefully they ride them before the admiring gaze of the scientific world. All this is not to Kircher's disparagement—one of the first to notice the appearance of fossils in their varied forms, and to attempt their explanation.

There underlies all Kircher's writings, a belief in the co-operation of Deity with nature, or rather in the operation of Deity

through nature, in the production of phenomena, which makes us respect the man, even while we smile at his oddities. The anecdote of his treatment of the infidel, will illustrate this recognition of the Deity. He had placed a celestial globe in his chamber, and to the inquiry how it came there, and who made it, Kircher is said to have replied, "It was made by no one, and came in the chamber by chance." The skeptic exclaims, "That is absolutely impossible, you surely jest." Kircher replies, "How can you contend that those heavenly bodies, of which this is a faint and diminutive resemblance, came into existence without order or design, when you will not believe that this small body originated in mere chance?"

A serious earnestness pervades all his inquiries into the fables of the past, which assumes an extremely comic air as we read them at the present day. If he discusses the subject of giants, he gravely argues against the probable existence of the giant,* which Boccaccius had described as being found near Drepanum, whose height was only four hundred feet, because there never was even a colossal statue erected, but which would have been surpassed by him in height; and he asks his readers to look at the consequences which would necessarily follow with reference to the habitation and food of such a monster. He triumphantly asks, "What habitation would be sufficiently capacious, what nutriment adequate for so great a gullet? A whole flock of sheep and goats would not suffice for a day's food; an ox would only be a mouthful; rivers and fountains would be exhausted for his drink." And then he proceeds to give his *valid* reasons against the whole statement, concluding by giving his readers a sketch of the difference between the height of ordinary men and that of the supposed giants, in which the *homo ordinarius* stands alongside of the Drepanum giant, reaching about ankle high, and looking fully as insignificant as Gulliver, when on his tour to the land of the Brobdignagians. How thankful should we all be, that our nursery tales, about the giants which that wonderful Jack went about, like a good fellow as he was, slaying, were not promulgated in the seventeenth century, when our philosopher lived. All the verisimilitude that now invests them, would have been dispelled; and many a wondering countenance would have been removed from the nursery.

We find at times a species of dry humour in Kircher's solutions of problems, which the scientific men of his age had proposed to themselves for solution. Thus, he considers the problem with reference to the method of making *a perpetual fire*, and, after showing how the three methods proposed for accomplishing this end, had failed, gives his own, which depends on the experi-

* Mundus Subterraneus, ii., 58.

menter's first finding a vein of bitumen, or any other inflammable liquid, which flows *continuously* from the earth. Having a continuous flow of the same, he quaintly says, by its aid we can have a perpetual fire,—which is, of course, very intelligible, a perpetual supply of fuel being furnished for its support.

But we must leave the works of Athanasius Kircher, without noticing the contributions he made to optics and other branches of science, which have grown up to the full stature of maturity since his day. We have had a glance at the zeal with which he rides his hobby, as well as the quaint housings he has affixed to the saddle. A more honest man ne'er rode a hobby! A man more imbued with the idea that "every good gift and every perfect gift is from above, and cometh down from the Father of Lights, with whom there is no variableness, neither shadow of turning," did not live in his day; and we can well understand with what truthfulness he appended to his works, the words, *Ad majorem Dei gloriam!*

If we retrace our steps, until we reach the commencement of the sixteenth century, we shall have an opportunity of taking a glance at one of the most gifted of "the mystic philosophers," a most decided alchemist and magician, a follower of the doctrines of Paracelsus, and a cultivator of all the oddities of the day. We refer to the secretary of the emperor Maximilian—Henry Cornelius Agrippa. Germany has many a legend about this alchemist, full of wonderful accounts of his dealings with the infernal powers, and well calculated to bring terror to the superstitious. His memory is associated with that of a famous black dog, who was his invariable companion; and this attached animal has been vilified and abused by every writer of the times of Agrippa. Smedley* relates, on the authority of Jovius, the report that Agrippa, "perceiving the approach of death, took a collar ornamented with nails, disposed in magical inscriptions, from the neck of this animal, and dismissed him with these memorable words, 'Abi, perdita bestia, quæ me totum perdidisti,' (Away, accursed beast, through whose agency I must now sink into perdition.) The dog thus addressed, it is said, ran hastily to the banks of the Saone, into which he plunged headlong, and was never afterwards seen." Butler, in Hudibras, however, introduces the following, with reference to the supposed familiar of Agrippa:

> "Agrippa kept a Stygian pug,
> I' th' garb and habit of a dog,
> That was his tutor; and the cur
> Read to th' occult philosopher,
> And taught him subtly to maintain
> All other sciences are vain.

* Occult Sciences, 36.

To this, quoth Sidrophello, sir,
Agrippa was no conjurer,
Nor Parcelsus, no, nor Behmen,
Nor was the dog a cacodæmon,
But a true dog that would show tricks;
Would fetch and carry, was more civil
Than other dogs, but yet no devil;
And, whatsoe'er he's said to do,
He went the self same way we go."

There was more superstition about Agrippa than the other personages we have already examined—more belief in the power of cabalistic signs and formulæ. But he had his hobby, which raises him above the alchemists and astrologers of his day, makes the scientific man see some good in him, and confers the title of great upon him. This hobby was his belief with respect to the constitution of matter: that God was in all things, and gave not only vitality to that which was organic, but every form and appearance possessed by nature. It is true that, as this idea appears in Agrippa's writings, it assumes the form of pantheism. But this was considerably in advance of that pagan reverence which the world at large was then paying to signs and symbols. He writes* that "matter is dead and inert, and without power to act; it receives strength and acts from the ideas, that is, from nature, which have of themselves no bodies and no extension, but come from God into matter. Everything, however, according to Plato and the Platonists, is of divine origin, and on that account God is contained in all things." And then he goes on to conclude that the stars, as they are made up of the same matter with earthly bodies, must have power over them; and, by a species of logic that we are unable to comprehend, he derives the most singular conclusions with reference to the powers of the stars and the truths of astrology. We grope along in the darkness, which becomes more and more dense as he proceeds in his description of "the occult philosophy," until at last the faint glimmer of light which had half revealed us the path we are pursuing, is reduced to a mere phosphorescent glow in the distance. Our only hope is by retreating to the full light of day.

Agrippa is, however, a fine example of the effects of mere speculation. At first, it builds its theories on a slight foundation of truth; so slight, indeed, that it could sustain but a small superstructure; but the architect adds story on story, ornaments these with heavy mouldings and grotesque carvings, contrives arches of great strength, as though an arch without proper abutments would sustain weight: and finally, after adding a cornice with quaint devices, constructs the roof and spire, which pierces into the

* Ennemoser's Magic, ii., 254.

clouds. Complacently he views the embodiment of his idea, and boasts of the exquisite beauty of the superstructure. When the storms come, the walls totter and the building falls; then in the ruins themselves we shall find the only fit monument that such folly deserves. Goethe never spoke truer words than when he made Mephistopheles say: "A fellow who speculates is like the beast whirled around and around, by an evil spirit, upon a barren heath, while just beyond him, on all sides, are found meadows decked with beautiful green."

We do not wish to hold up speculation on proper subjects as something deserving the contempt and reprobation of man. His mind was created with a capacity, probably, far exceeding our most exaggerated notions with reference to it. Its knowledge of the secrets of nature has been wonderfully increased with each passing year. Indeed, the investigation of these mysteries seems to be one of the tasks assigned it. He, who contributes by careful and diligent study to the prosecution of this investigation, confers a benefit on his race; but, to make this benefit unaccompanied by that which may eventually do detriment to his fellow-man, he must keep within the limits of those facts with which discovery has furnished him, and preserve a strong and unwavering faith in the words of revelation. There is no room for fanciful or infidel conjecture. Truth is too beautiful to require the meretricious adornments of fancy; too noble to need borrowed robes; too grand and great to require any aid, save that of her own majestic form, to excite reverence and awe in the minds of her worshippers. When an attempt is made to enrobe her with ornaments or decorations, her character is entirely changed, and she becomes falsehood. It is well for those who make such attempts if the error of their speculations becomes patent to their own minds before the fitful career of life is over. It was so with Agrippa; and he writes, how one will consume his wealth, lands, and all his heritage, in the pursuits of alchemy, and finally possess nothing but smoke and cinders; how chemistry becomes, when employed in this way, sham chemistry; medical men mendicants, appearing to the people as actors in a mere farce. In his last moments, we find him bewailing with great grief, the follies of his own course, "and solemnly condemning the errors and falsehoods of his brethren." Thus was Agrippa's career closed. But the honest recognition of the presence of one God, manifested in the works of nature, had its effect on his followers. If they would persist in dreaming over the impossible, and sighing for the day when their wildest visions were to be realized, this was accompanied by a deep and reverential awe for the Deity, and a recognition of his presence as necessary for the existence of all things and all knowledge.

At the beginning of the seventeenth century, the mystic element invaded the studies of men who cultivated the department

of experimental science. Prior to that period, some of the church fathers had introduced this element into theology, and Paracelsus had shown great respect for it, and, despite occasional exhibitions of ravings at religion and religious things, his writings show a reverential regard for the books of revealed truth. Now, however, all the mysticism of centuries and the dreams of Paracelsus, were to be collected together. They were to be combined so as to form the foundation on which a secret order could sustain itself. We propose examining cursorily into the history of the order, before we close this rambling series of glances at mediæval hobbies.

The brothers of the Rosy Cross, or Rosicrucians, constituted an order which really came into existence about the year 1603. The publication of a book,* by the title *Noces Chimiques de Chretien Rosenkreuz*, seems to have given rise to the order, by collecting together a number of the disciples of Paracelsus, and forming a fraternity for various mystical purposes. This book was written by Valentin Andreæ, a theologian of Wirtemburg, as *ludibrium juvenilis ingenii*—a boyish freak. Annoyed afterwards by the adoption of his fiction as history, he endeavoured, in 1624, to form a society which should be composed of what were true students of chemistry and true admirers of the doctrines of Paracelsus. But, unfortunately for the worthy ecclesiastic, his new society soon became swallowed up in the old. He had, in sport, adopted the title of Chevalier de la Rose Croix, and bore as a coat of arms, on his shield, a cross with four roses. His title and the coat of arms were also adopted by the fraternity as its own. Thus, if we may believe the historian, the mystic order of the Rosicrucians was founded on the sportive production of an idle and dreamy ecclesiastic. The origin of a sect of religionists in this country, it will be recollected, was of a similar character, and their guide-book—the book of Mormon—was in reality prepared by a citizen of New York, without the slightest idea of the uses it would eventually be subjected to.

Dropping, however, any further examination as to the *real* history of the order, let us glance at the accounts of its rise and progress as given by its members. Whether such a man as Christian Rosenkreuz ever lived, must not be discussed at present. We wish the whole account to be given out of the mouths of the members of the order. Towards the end of the fourteenth century, they say, a German, Christian Rosenkreuz, made a voyage to the East, to perfect himself in science. While in Turkey, he produces a portion of the doctrines which were afterwards to be so attractive to his followers. From there he goes to Palestine and Arabia, for the purpose of consulting the Arabian sages at Damcar. Here, to

* Thomson's Hist. of Chemistry, i., 173. Figuier, Alchimie et les Alchimistes, cap. v.

his astonishment, immediately on his arrival, he is saluted by his proper name, although he had never seen the philosophers before—is told of many things which took place formerly in a monastery where he resided in Germany; and is assured by them that they had been awaiting his arrival for years, since he was destined to be "the author of a general reformation of the world." They communicated to him many of their secrets, after which he travels to Barbary, in order to converse with the Cabbalists at the city of Fez. After many troubles and dangers, experienced in futile efforts to establish a society with his doctrines in Spain, he returns to Germany, and there communicates the full nature of his secrets to none but his three sons. He retires to a cave, and lives in robust health, until he attained the age of one hundred and six years, when he dies, in the year 1484. It seems the cave constituted his tomb, and was lost sight of until the year 1604, when an accident caused its discovery. The interior of the cave was found to be illuminated by a mellow light, that was supposed to proceed from the sun at the centre of the earth; yet it enabled the discoverer to read inscriptions which had been engraved on copper on the altar. Among others was the following: *Après six vingts ans je serais découvert.* Singular to say, it was just one hundred and twenty years after Rosenkreuz's death. Books and instruments were also found in the cave, and the secrets of the order were first obtained by the discoverers of Rosenkreuz's tomb. These soon collected many brethren together, and the order extended through all parts of Germany and France. *Thus runs the legend!*

The Rosicrucians in fact constituted a society, in which students of experimental science, desirous of concerted action in their experiments, could find pleasant and congenial friends. They elevated alchemy above the low and contemptible position it had attained through its irreligious cultivators. But *what* were their real secrets, the world will never know, although we may be satisfied that their studies were directed to the same end as those of Paracelsus, whose doctrines they firmly believed. Their pretensions were prodigious. They claimed that they were destined to reform the world; that they possessed wisdom and piety in a pre-eminent degree, with the power of dispensing these to whomsoever they pleased; that they were never subject to hunger, thirst, disease, or sleep; that by direct revelation they were informed of the wishes of those desiring to become members of the order; that they could compel devils and spirits to obey their commands, and to bring them gems and precious stones; that, — but we feel that our readers are becoming aweary of the mere enumeration of the pretensions of this order. It is a pertinent question, whether any or all of these were ever realized by the Rosicrucians? History and common sense give a plump negative. *They* endeavoured to ride too many hobbies, and none were within the reach of mortal

men. They spent their time in fruitless searches after that which was beyond the province of probability, and so wandered about in the region of speculation. In a half century, they had become the laughingstock of the world, and the chevaliers of the Rosy Cross added but little to the knowledge of mankind, although they aided in paving the way for the introduction of a more religious feeling into scientific investigations. This work was not without its value. No work, indeed, is valueless, which is productive, sooner or later, of such results. And thus even delusion may bring incalculable benefits to the race.

We feel that these scientific men of the middle ages have a singular right to demand the tribute of grateful respect from the present age, when science is ever renewedly budding and blossoming, is shedding its invigorating perfume over the arts of life, is bringing the blessings of comfort and happiness to the door of the humble, as well as of the proud, and is freeing man from the shackles of ignorance and stupidity. They sacrificed all the comforts of home and social relations; they immolated all prospects of earthly position on the altar of experimental investigation; they consecrated their lives to weary days and nights of tedious study.

> "Their cloistered hearts
> Knew not the bitter pangs that parts
> Beings that all affection's arts
> Had linked in unity.
> They loved not, dreamed not,—for their sphere
> Held not joy's visions; but the tear
> Of broken hope, of anxious fear
> Was not their misery."

History is valueless to man, unless he can learn some lesson from it, which may be applied to his own benefit. Can any such lesson be derived from a study of the class of men we have been examining in this article? We think the answer to this interrogatory is a decided affirmative. We have seen the truths, which they have cultivated, surviving the derision and contempt that their follies received from subsequent ages,—how the passage of time has worn off the rough ornaments they endeavoured to hang on the fair form of truth, and has left it, freed from these disfigurements, to challenge the admiration of the student of history.

Their hobbies, when "honest and well kept," have elevated those riding them far above the ages in which they lived, and have borne them to places amid the worthiest of the past. When these were "improper or badly kept," they have carried their riders down the steeps of fame, to the shores of that sea whose name is oblivion, and, plunging therein, have perished along with them in its deep waters. Surely this contrast is pregnant with warning to their successors: and who is not a successor? who has not an especial hobby of his own?

Again, we may learn from the fate of these men, how necessary it is never to forget, while beholding science in her fairest form, that there is a Being greater than she, whose majesty and greatness she but reflects darkly as from a mirror. There must be danger of forgetfulness on this point. For, when but an infant, indulging in the sports of infantile life, and exhibiting little beauty except in the promise of the future, when all her mental powers and bodily graces were only potentially present, even then we find men, and men of might too, men of gigantic minds, raising her up and bowing in adoration before her; how much greater must the temptation be now, since she has attained her majority? Grace exhibits itself in her form, combined with dignity in every movement; her cheeks are flushed with honest pride, at the victories she has gained; her queenly forehead shames the coronet of precious gems which rests above it, nestling amid her raven locks. Have we not here a queen of nature's secrets and nature's beauties, whom we can worship? No! we *must* respect her; we *should* reverence; we *may* love; but never worship; since it belongs alone to that "jealous God," who hath commanded, "Thou shalt have none other gods but me."

Art. IV.—THE INFINITE.

Discussions on Philosophy and Literature, by Sir William Hamilton. *With an Introductory Essay, by* Robert Turnbull, D. D. New York: 1853.

Philosophy of Sir William Hamilton, Professor of Logic and Metaphysics in Edinburgh University. Edited by O. W. Wight. New York: 1854.

The recent death of Sir William Hamilton will, doubtless, call from some of his admirers a notice of his contributions to philosophy. Full of years and of learning, he has gone down to the grave with many honours, and left behind him, in Great Britain, no worthy successor to occupy the throne he has vacated. He had gathered all the treasures of scholastic and patristic lore, and in his capacious memory had stored, more than any other man of recent times, the classic and mediæval speculations on logic and metaphysics. It is not, however, our purpose now to bring forward an estimate of his scholarship or his genius, or to inquire into the extent and value of his contributions to philosophy. Our present design is to consider a subject which he has discussed

with some boldness, and reached conclusions very different from other philosophers of ancient and of modern times. Some of his friends and admirers have revolted from his doctrine of the infinite, and refused their assent to his reasoning and his conclusions on this subject; and we propose to consider how far he has sustained himself in this attack on the common opinions—we had almost said the common sense, of mankind.

We are told by Sir William, that the infinite is unknown to us, and absolutely unknowable; that, to the limited and narrow understanding of man, not only is this knowledge impossible, but also the very conception of the infinite. Although the word is everywhere found in our literature, employed in our every day conversation, heard from the pulpit every Sunday, interwoven with our hopes and fears of a future life, we are gravely assured that the idea is entirely inconceivable. The Christian considers it as an attribute of the Almighty; the mathematician has devoted to it a large department of his science, which is acknowledged by all to be the most certain and exact of all pursued by the human intellect; the philosophers of every age and country have disputed much about the origin of the idea, whether primary and underived, or the result of reason and reflection; but, in opposition to all these, our Scotch philosopher has satisfied himself that all this discussion is about an unreal, imaginary fiction, that has no existence in the actual world without us, as far as our knowledge extends, or in the inner world within us; more unsubstantial and fictitious than the chimæra of the ancients: for, if that had no corporeal existence in the mountains of Lycia, it had "a local habitation and a name" in the thoughts and fears of that neighbourhood.

Lest we should be supposed to misunderstand or misstate the opinions of Hamilton, we introduce, before we go further, some extracts from his "Philosophy of the Conditioned:"

"We can never, in our highest generalizations, rise above the finite."—*Philosophy of Hamilton*, p. 456.

"Time is positively inconceivable, if we attempt to construe it in thought; either, on the one hand, as absolutely commencing or absolutely terminating, or, on the other, as infinite or eternal, whether *ab ante* or *a post.*"—*Philosophy*, p. 488.

"Space is positively inconceivable, as a whole, either infinitely unbounded or absolutely bounded."—*Philosophy*, p. 490.

"Degree, or intensive quantity, is positively inconceivable, as infinitely without limit."—*Philosophy*, p. 491.

"The philosophy of the conditioned denies to man a knowledge of either the absolute or the infinite, and maintains all which we immediately know or can know to be only the conditioned, the relative, the phenomenal, the finite."—*Philosophy*, p. 492.

These extracts leave no doubt of the meaning of Sir William. He asserts, not only that we do not know the existence of infinite space, or time, or power, or being, not only that they are never thought of by our intellects, but that they are completely inconceivable; that it is beyond the power of man to represent them to his mind, to think of them as real or unreal, to imagine them, to discuss them, to believe in them, to conceive them.

To remove all doubt about the meaning of Sir William Hamilton, it may be added, that his disciples as well as his opponents have uniformly understood him in the sense here explained, and that this feature in his philosophy, the denial of the unconditioned, whether in the absolute or the infinite, is the essential point of contrast between his system and that of Cousin, which he was endeavouring to supplant and overthrow.

A fatal objection to this doctrine is the appeal to consciousness. We know that we have this notion of the infinite in the furniture of our minds. As we view the thoughts that pass before our consciousness, this conception rises before us, and we recognize it as one that can be thought of, that can be discussed, and that may possibly belong to the space without us. We may dispute as to its origin, whether innate or derived, but that it is there, we cannot doubt.

This appeal to consciousness, is decisive of the question for us; and it is alike decisive to all who, on reflection, find this thought within the sphere of their consciousness. For, although our thoughts and our beliefs are not the measure of truth, they furnish the highest possible evidence, when the inquiry relates to the conceivability of any idea. Whether there is above and around us an Infinite Being, or a space stretching in all directions without boundary, or a time running backwards and forwards without limitation, cannot be determined or proved by our ideas or our beliefs. But not so with the conceivability of any idea. If our belief should be, that far off, in the vast expanse of space, the

"Flammantia mœnia mundi"

impose a limit to the created universe, and comprise within their ample boundary the whole range of planets, and suns, and chrystalline and adamantine spheres, and that beyond those walls not even an empty void exists; or, if we believe the opposite, our belief will not settle the truth or the falsehood of the proposition. But, when we inquire into the ability of the mind to form a conception of this space, the ultimate appeal is to consciousness, and its decision is final and complete. This appeal to our own consciousness and that of our readers, we have made, and we assert that we are conscious of thinking of the infinite, and therefore the notion is conceivable.

If, however, Sir William Hamilton and his followers should say that they have no consciousness of this idea; that it enters not into the inner chamber of their spirits; that, if it were thus found, they would give up the question in dispute—for they acknowledge the paramount authority of consciousness in this and similar inquiries—this appeal to our own reflections, our own thoughts, our own history, would not be final and satisfactory. We declare we have the idea within us, and they reply that they have it not. To meet this disclaimer and denial, we transfer the appeal from ourselves, and submit it to another jury. We call on the whole race of mankind, and ask them to decide the question by an appeal to their consciousness. And we demand of this jury a verdict in our favour. In fact, their verdict is already recorded in the common beliefs, the language and literature and science of the world, and it is only necessary to examine this record to announce their decision.

If we ask any one his opinion on the immortality of the soul, or on the everlasting punishment of the wicked in a future world, his reply will be in favour of these dogmas or against them. Perhaps he may say that he has not formed a fixed opinion on these subjects. But one of these answers or something like them he will be sure to give. He will not say that he does not know what is meant by immortality or everlasting; that these ideas are beyond his comprehension; that these words convey to him no definite notion; or that the conceptions are so contradictory and absurd that he cannot pretend to form any opinion in reference to them. Now, their beliefs or their disbeliefs, or their hesitation about forming an opinion on these proposed questions, are all alike proofs that they have the idea of everduring time, of infinite duration.

The same conclusion may be drawn from the common beliefs, that God is almighty or infinite in power; that he is without beginning of days or end of years; that he filleth infinite space with his presence; that the human soul will live forever; that matter is indestructible; that parallel lines will never meet; that eternity has no beginning or end; that space has no boundary, and that the series of numbers 1, 2, 3, 4, 5, 6, &c., is infinite.

Our language is full of words that present this idea in every variety of form. We use the terms almighty, eternal, unbounded, unlimited, omnipresent, omniscient, omnipotent, evermore, everliving, everduring, everlasting, unending, unborn, uncreated, immortal, boundless, endless, limitless, and very many others, which any one may recall, each implying the idea of the infinite. The phrases with which we express the same idea are still more numerous. We say forever and ever, without beginning or end, infinitely great, increasing without limit, more than can be conceived or numbered; and the very great variety of these words and phrases, used, as they are, by all classes of society, high and low, educated and ignorant, is a proof, not only of the existence

of the idea in the minds of our race, but of its commonness and universality.

Our great poet introduces the conception in almost every page of his "Paradise Lost:"

"Him the *Almighty* power
Hurled headlong, flaming from the ethereal sky,
With hideous ruin and combustion, down
To *bottomless* perdition, there to dwell
In adamantine chains and penal fire,
Who durst defy the *Omnipotent* to arms."
Book I., lines 44-49.

"Regions of sorrow, doleful shades, where peace
And rest can *never* dwell, hope *never* comes
That comes to all; but torture *without end*
Still urges, and a fiery deluge, fed
With *ever-burning* sulphur, *unconsumed.*
Such place *eternal* justice had prepared
For those rebellious." B. I., 65–71.

"*All* is not lost; th' *unconquerable* will
And study of revenge, *immortal* hate,
And courage *never* to submit or yield." B. I., 105–108

"For the mind and spirit remains
Invincible, and vigour soon returns,
Though *all* our glory extinct, and happy state
Here swallowed up in *endless* misery." B. I., 139–142.

Here, in less than a hundred lines, more than a dozen examples of the infinite are introduced. And can any one suppose that Milton has filled his immortal poem with ideas which neither himself nor his readers can comprehend? If any one should suspect that this sublime epic owes its interest in part to grand and magnificent ideas, not only transcending experience, but rising still higher, and swelling even beyond the conception of the human intellect, let him turn to an author who has won the unfading chaplet of fame, not by bold and original conceptions, but by his careful study of the human heart, and his thorough knowledge of our common nature, as it is found in all grades and conditions of society.

"Thou antic death, which laugh'st us here to scorn,
Anon, from thy insulting tyranny,
Coupled in bonds of *perpetuity*,
Two Talbots winged through the lither sky
In thy despite, shall '*scape mortality*."
1 King Henry, vi., act 4, scene 7.

"For, had the passions of thy heart burst out,
I fear we should have seen deciphered there
More rancorous spite, *more* furious, raging broils
Than yet can be imagined or supposed."
1 K. H., vi., act 4, sc. 1.

"And *no way* canst thou turn thee for redress,
But death doth front thee with apparent spoil.
Lo, there thou standest, a breathing, valiant man,
Of an *invincible*, unconquered spirit." 1 K. H., vi., act 4, sc. 2.

"That *everliving* man of memory,
King Henry the Fifth." 1 K. H., vi., act 4, sc. 3.

"*Never* to England shall he bear his life;
He dies betrayed to fortune by your strife." 1 K. H., vi., act 4, sc. 4.

"Upon my death the French can little boast;
In your's, they will; in you *all* hopes are lost."
1 K. H., vi., act 4, sc. 5.

Here, in a single act from one of Shakspeare's plays, are more than half a dozen examples of this idea, embracing the infinite in space, in time, in power, and in number. And will any disciple of Sir William Hamilton suggest that these two great authors, and nearly every other that has ever written in our language or in any other language, have employed ideas which are vague, indefinite, and inconceivable, which the human mind could not grasp, appreciate, or understand? If they should, what would they say if we call Sir William himself to the stand, and learn that he has himself introduced the same conception, frequently and in many places; that he reasons about it, discusses it, and arrives at conclusions concerning it, which he announces with the most satisfactory positiveness. We do not mean that he merely uses the word infinite in his writings, but that he employs the idea itself. Here is an extract which will suffice to present this puzzling question:

"We cannot conceive the infinite regress of time; for such a notion could only be realized by the infinite addition in thought of finite times, and this would require an eternity for its accomplishment."—*Phil.*, p. 473.

Here, in attempting to prove that we cannot conceive the infinite, he says it would require an *eternity* for us to obtain the idea. Now, eternity is the infinite of time, and, to prove that we cannot have the idea of the infinite of time, he uses the idea of the infinite of time. How can he say that an eternity would be requisite, if he knew not what eternity was? He uses the term correctly; he acknowledges by its use that his readers are supposed to understand it, and yet asserts that the idea is entirely inconceivable. It has been well said, that to doubt that we think, proves that we do think, because the doubting implies the thinking. So, also, to assert that an *eternity* is required for the infinite addition of finite times, implies a conception of eternity and of the infinite.

Other examples might readily be given, in which Sir William discusses the properties of the infinite, its nature, its agreements and disagreements; and when, after this, he turns round and denies the conceivability of the idea, we have reason to say,

" O, judgment, thou art fled to brutish beasts,
And men have lost their reason ——."

If we turn from the literature to the science of the world, we will find more precise and unmistakeable testimony to the conceivability of the infinite. The geometers of Greece have handed down to our age some propositions concerning it, and these have been largely extended by modern mathematicians. Not merely the asymptotes of the hyperbola, and its branches, were regarded as infinite lines, but Archimedes discovered the area of the parabola by an infinite series of rectangles. Kepler and Cavalieri extended this principle of the infinite to many other lines, surfaces, and solids. Afterwards, the doctrine of the infinite, in the hands of Newton and Leibnitz, laid the foundation for that important branch of modern mathematics known as the calculus. In almost every department of physics, in optics, astronomy, and mechanics, in the laws of force and motion, this new department of science has developed the most admirable results, and brought to our knowledge an immense array of truths, which had else remained unknown. The triumphs of Newton and La Place, of Young and Fresnel, have been due to this introduction of the infinite; and, now that their immortal works have been written, and their imperishable discoveries made, a Scotch metaphysician comes forth from his study of cloistered scholiasts and mediæval logicians, and tells the world, " ye know not what ye worship ;" that the great lights we have admired were themselves in darkness; that they never even formed a conception of that infinite by which they had forced nature to reveal her secrets. For near two hundred years has this idea of the infinite been the foundation of the calculus; and from Newton to La Grange has effort after effort been made to develope its principles and explain its applications without this idea, but all have failed. And will any one say that this splendid science, which has wrought so many wonders, is wholly dependent on an idea of which no man can form a conception ?

" Credat Judæus Appella,
Non ego."

Not merely in mathematics but in metaphysics also, is to be seen the same recognition of the infinite. Locke has a long chapter on the subject. Plato's ideas had no origin in experience, but, unborn and eternal, they dated back to an absolute origin before the birth of time. " From Xenophanes to Leibnitz, the infinite, the absolute, the unconditioned, formed the highest principle of speculation." From Kant to Hegel, " the absolute has haunted the schools of Germany ;" and Cousin, maintaining " that the idea of the infinite or absolute, and the idea of the finite or relative are equally real," reduces all the facts of consciousness to these two ideas, and their correlation with each other.

In the Christian religion, the infinity of the attributes of God is most plainly declared; in Mahomedan countries, the same doctrine is taught and received; and in the barbarous, as well as the civilized countries of Paganism, the infinite I Am, even though an unknown God, has always had his altars and his faith. In most of these religions, the immortality of the human soul, of angels, and of evil spirits; the indestructibility of matter; the eternal pre-existence both of spirit and of matter, are dogmas of religious belief.

We have read now the verdict of our jury. The question submitted was not the reality of the infinite, but its conceivability. And our appeal was made to the consciousness of our fellowmen. We have found, in the beliefs of mankind, in the language, the literature, the science, and the religion of every age and country, the most unmistakeable proofs that they believe they have a notion of the infinite; and it is most strange and unaccountable that such universal testimony should be given, unasked and in the most incidental manner, in favour of the reality of the infinite as to space, time, power, and number; and as to God, angels, and men, and even as to dead matter, if the very conception was to us impossible.

But, without appealing farther to authority, which, except in questions of fact, or in courts of law and equity, is seldom decisive of any question, we will now examine the subject independently, and submit it to the decision of the understanding.

We will begin, first, with a precise definition of the word. Its derivation implies *without end;* but this is too vague and indefinite for our present purpose. Locke's description is satisfactory. He says, "all the idea we have of the infinite, is the idea of a space, or a duration, larger than the extent or duration of 10, 100, 1,000, or any other number of miles or years whereof we can have a positive idea." If this description is put into a precise and compact form, we would say:

Infinity is a quantity greater than any assignable quantity.

This is a logical definition by means of proximate genus and specific difference. It is, first, of the class of things we call quantities, and, secondly, it differs from all other things of this class by this characteristic, that it exceeds every other quantity that can be assigned or named.

Is a million infinite? Is a million of millions? No, says this definition; for it is something greater than can be named, and these are not. No arithmetic can express it, no numeration read it. We may represent it by a symbol or sign, but not by the Arabic numerals; because, as soon as these numbers are used, the infinite is something beyond, a quantity still greater.

This definition corresponds with the common, universal use of the word. The infinites of space, or time, or power, or number, are all greater than any quantity that can be mentioned. The

years of God are infinite in this sense; so also his power and the extent of his dominion. The forever which the soul will live, agrees with it also. The infinite in goodness, justice, and truth, is not comprised in this definition, because these are only metaphorical infinites, as Locke has correctly remarked. By considering goodness as a quantity, by estimating it in proportion to the number and amount of good deeds it performs, we can, by a figure of speech, call it infinite; but in no other way.

This definition explains fully what is meant by the term. No idea, or notion, or quality, is contained in the one, which is not also contained in the other.

It also distinguishes the infinite from everything else. It separates it from the immense; for, however great a thing may be, it will not come up to this definition. It also distinguishes it from the indefinitely great; for, if a quantity is indefinite, unfixed, undetermined, we are unable to say whether it is greater than any assignable quantity.

And these are the marks of a good definition, that it explains fully and correctly what is meant by a word, and carefully distinguishes the thing from everything else.

Now, we present this decisive proof that the infinite is conceivable. We are able to define what is meant by it, to express in words the full and complete ideas in the term, and to draw a precise and broad distinction between it and every other notion. Surely it is evident to every one, that this would be impossible unless the infinite were conceivable. If we can mark out distinctly our idea of a thing, it must first be thought of and conceived. To explain and describe what we do not know, or understand, or conceive, is certainly impossible.

The next consideration which satisfactorily proves that we can conceive the infinite, is, that the mind can reason about it with perfect accuracy. It must be acknowledged, that some persons have made gross mistakes in reasoning on this subject. The most of these have been made by loose and careless authors, or by persons who had not studied and reflected on the subject. Some have been made, however, by scientific men, and by acute and sagacious scholars. Newton himself made a memorable error of this kind. This was, however, merely an oversight, and was promptly corrected. Numerous examples can, however, be given, in which there is no room for error, and in which all men will agree, that the correctness of the reasoning is unquestionable.

We might give, as instances of this, the proofs of the immortality of the soul; of the eternity of the great First Cause; of the absolute infinitude of space; and, even if these reasonings did not establish the truths they undertake to prove, they would serve our present purpose, to show that we can reason about the infinite. We prefer, however, to select our examples from the science of mathe-

matics, on account of the more precise and exact nature of demonstrative reasoning. But here such an immense array of examples present themselves, that we do not know which to select. We must avoid the higher branches, because of their abstruseness; and even geometry, which is full of examples of the infinite, will not be appropriate for the general reader. Arithmetic, however, which every one studies who can read, will furnish us with sufficient and satisfactory instances; and to these we will confine ourselves.

The vulgar fraction $\frac{1}{9}$, if converted into a decimal, according to the common rules of arithmetic, will produce an infinite series. The numerator 1, or 1.000, &c., which is the same, since it means 1 and no tenths, no hundredths, and no thousandths, and so on, being divided by the denominator 9, will convert the vulgar fraction into a decimal. Thus,

$$9\overline{)\,1.000000000000\ \text{&c.},}$$

gives $.111111111111$ &c., *ad infinitum.*

This series never ends. However long the division be continued, a remainder is always left, which will give another unit to the quotient. And so on forever. Here, then, is an infinite series, an infinite number of terms, a number without end, a number greater than any assignable number. Only a few of them are written down, the rest being included under the &c., at the end of the dozen ones above written. But under that symbol we understand that all are embraced.

Now, if the first two terms of this series, $\frac{1}{10}$ and $\frac{1}{100}$, be added together, the sum will be less than $\frac{1}{9}$. So, also, if the first three or four, or the first hundred, or the first thousand, or the first million. The sum becomes nearer and nearer to $\frac{1}{9}$, the more terms are taken; but, however many of the terms we may actually add together, the sum will be sure to be less than $\frac{1}{9}$, because, at whatever term the division by which the series was obtained, is stopped, a remainder was always left, and, as long as this is the case, the decimal cannot equal the vulgar fraction from which it was obtained.

Now, it may be shown by various mathematical processes, that the sum of all the terms of the infinite series is exactly equal to $\frac{1}{9}$. This sum is not obtained by actually adding two, three, and four together, and so continuing until all are added, for it is readily granted that such a method of addition would "require an eternity for its accomplishment." But by several unexceptionable modes of procedure it is proved, that the sum of all is equal to $\frac{1}{9}$. If any finite number of terms is taken, it is shown that the sum is less than $\frac{1}{9}$; but, if all of the whole infinite number be taken, the sum is neither more nor less than $\frac{1}{9}$.

Here, then, is the summation of an infinite number of terms.

The first one is $\frac{1}{10}$, the second $\frac{1}{100}$, and they become smaller and smaller as their number of terms becomes larger. But the sum of all is but little more than the first term. The sum of the infinite number of terms is not infinite, but a very small finite quantity.

There is no end to the examples like this which are furnished by circulating decimals.

$\frac{1}{3}$ is equal to .333333333, &c., *ad infinitum;*
$\frac{1}{11}$ is equal to .090909090909, &c., *ad infinitum;*
$\frac{1}{99}$ is equal to .010101010101, &c., *ad infinitum;*
and innumerable others might readily be given.

In these examples, we may observe the difference between the infinite and the immense. For, if a very great number of these terms is added together, even if the number reaches a thousand millions of millions, the sum is less than the sum of the infinite series.

So, also, the distinction between the infinite and the indefinitely great, may be seen in these examples. By a definite number is meant a fixed, determined, assigned number; by indefinite, one unfixed or undetermined. Now, if we add together an indefinite, unfixed, but finite number of terms of the first series we have mentioned, the sum will be unknown, but somewhere between one-tenth and one-ninth; 'tis only the sum of all that will make $\frac{1}{9}$. The indefinitely great is less than the infinite.

These examples are sufficient to show that we can reason satisfactorily about the infinite, but we will now give another example, in which the general reader will see more readily the correctness of the summation of the infinite series.

What is the present value of a *perpetual* rent of $105 per annum, if money be reckoned to be always worth five per cent. interest per annum?

Here the amounts to be received for this rent are $105 at the end of the first year, $105 at the end of the second year, and the same sum at the end of every successive year forever. The present worth of the first payment is evidently $100; for if $100 were put at interest at five per cent., it would become $105 at the end of a year. The present value of the second year's rent is $95 and a fraction, of the third year's it is $91 and a fraction, and for every subsequent year it becomes less and less. Now, the question demands the sum of all these present values. It asks how much shall be paid in hand to be worth exactly the same as these successive payments continued forever.

It would be impossible, evidently, to obtain this result by an actual addition of the several present values; since the number of them is infinite. Nor would it be satisfactory to take the first hundred, or the first thousand, and neglect the rest; because the question asks for the sum of all; and also because there is an infinite number to be added together after the thousandth, and we do

not know but that their sum may be sensible, or even large, although each one may be less than a single cent. The rules of arithmetic show, however, that the sum of all is $2,100, and a little reflection will satisfy any one that this answer is correct; for the $2,100 put at interest will produce $105 the first year, and the second year, and every year forever, and thus give precisely the same returns as the rent.

Here, then, $2,100 is shown to equal the sum of an infinite number of present values, viz., the present worth of the income to be received at the end of the 1st, 2d, 3d, 4th, 5th years, &c., &c., continued forever. If we add together a hundred terms of this series, if we add a thousand, or if we add a million, the result will be less than $2,100,—a trifle less only, but certainly less. The sum of all the terms is, however, exactly $2,100. This amount will be obtained when the whole infinite number is summed; but not for any finite number less than all.

We will present another example from arithmetic. At what time after one o'clock will the minute hand of a watch overtake the hour hand?

As the minute hand makes 12 revolutions while the hour hand makes one, the former evidently moves with 12 times the velocity of the latter. When, therefore, the minute hand has gone five minutes, the hour hand has gone beyond one o'clock, the one-twelfth of five minutes; while the minute hand passes over this five-twelfths of a minute, the hour hand passes over one-twelfth of this distance; while the minute hand advances over this space to overtake the hour hand, the hour hand advances one-twelfth of the preceding space, and still keeps before the minute hand; and thus the whole time of overtaking the hour hand is conceived to be divided up into an infinite number of times. The first row below represents the distances gone over by the minute hand, and the second row represents the distance which the hour hand is then ahead of the minute hand:

Minute hand, $5,\ \frac{5}{12},\ \frac{1}{12}$ of $\frac{5}{12},\ \frac{1}{12}$ of $\frac{1}{12}$ of $\frac{5}{12}$, &c., &c.,

Hour hand, $\frac{5}{12},\ \frac{1}{12}$ of $\frac{5}{12},\ \frac{1}{12}$ of $\frac{1}{12}$ of $\frac{5}{12},\ \frac{1}{12}$ of $\frac{1}{12}$ of $\frac{1}{12}$ of $\frac{5}{12}$, &c., &c.

Now, the sum of all the infinite number of terms of the first row, is exactly $5\frac{5}{11}$; that is, the hour hand is overtaken at 5 min. and $\frac{5}{11}$ of a minute after one o'clock. Here a finite space on the face of the watch, or a finite time, is conceived to be made up of an infinite number of separate spaces, or separate times; if we call the times A, B, C, D, E, &c., the first, or A, is 5 minutes; the second, or B, is $\frac{1}{12}$ of A; the third, or C, is $\frac{1}{12}$ of B; the fourth, or D, is $\frac{1}{12}$ of C, and so on forever; E is $\frac{1}{12}$ of D; F is $\frac{1}{12}$ of E; G is $\frac{1}{12}$ of F, &c., &c., &c. But the sum of all the infinite whole is only $5\frac{5}{11}$ minutes. The first ten, or twenty, or hundred terms of this series

will make a fraction a little less than $5\frac{5}{11}$, but a thousand of them, or a million, will not equal this amount, nor will any number less than the infinite whole. We do not mean that the time employed in overtaking the hour hand is infinite, for that is only $5\frac{5}{11}$ minutes, but we have so conceived this time that it is represented by an infinite number of parts, of which the first, A, is 5 minutes, the second is $\frac{1}{12}$ of A, &c., &c., and the sum of these infinite number of parts is only $5\frac{5}{11}$ minutes.

An example every way similar to the last, but not so soon involved in fractions, is the following:

A ball, A, moving at the rate of 20 feet per second, is 1,280 feet behind another ball, B, moving at the rate of 10 feet per second: how soon will A overtake B?

Here, when A has advanced 1,280 feet, B has advanced 640 feet, and is still this far ahead. So, also,

	when A has gone this	640	feet,	B has gone ahead	320	feet;
and	"	"	320	"	"	"	160	"
	"	"	160	"	"	"	80	"
	"	"	80	"	"	"	40	"

and so on forever. However near A approaches to B, while A is advancing over this space, B will go forward and be ahead of A a certain distance. And though A will overtake B in 128 seconds, yet the time has been by this method of conceiving it, divided into an infinite number of parts. In the first 64 seconds, A reaches the point where B started; but B is, by this time, 640 feet ahead. This distance A goes over in 32 seconds, but B is now 320 feet ahead. And so the successive times of A's arrival at the point where B was at the beginning of each time, are

$$64,\ 32,\ 16,\ 8,\ 4,\ 2,\ 1,\ \tfrac{1}{2},\ \tfrac{1}{4},\ \tfrac{1}{8},\ \tfrac{1}{16},\ \text{&c., &c.};$$

and here is an infinite series, the sum of which is exactly 128. If ten, or a hundred, or a thousand terms be taken, the sum is less than 128; but if all of the whole infinite number of terms be summed, not by actual addition of two at a time, but by some other correct process, the result will be 128 seconds, which is the true time required for A to overtake B.

We have dwelt a long while on these examples, and probably exhausted the patience of many of our readers. One undoubted instance would have been enough; but we have varied the illustrations, with the hope that if the first or second may not present itself clearly to the mind of some, the third or the fourth may supply the deficiency. The object was to show that we can reason about the infinite; that our conception of it is so clear and distinct that we can say exactly how much is the sum of an infinite number of certain terms; can determine how much the sum of the infinite number differs from the sum of ten, a hundred, or a thousand, or

any other definite number; can show that the sum of an indefinitely great number of these terms is less than the sum of the infinite number. And since every one of these four examples, and a thousand others we might give, most conclusively and undoubtedly shows that we can reason about an infinite, in the most exact and precise manner, we claim that we must have a clear and definite notion of infinity. Our idea of the infinite must be fixed, and conceivable, and cognizable, before our conclusions about it can partake of the exactness and certainty of mathematics.

To complete the proof that we can conceive the infinite, it may be desirable to show, that we can determine its properties. We will then have established the conceivability of the infinite by three separate and distinct proofs. We can define it; we can reason about it; we can determine its properties. And, if we add to these the appeal to our own consciousness and that of mankind, as evidenced by their beliefs, their literature, their religion, and their science, we will consider our position as fully sustained.

When a proposition in geometry is proved, it is not merely demonstrated to be true for one figure, but for an infinite number. When we say that any two sides of a triangle are greater than a third, this is true not of one only, but of all. So of other propositions. They are shown to be true, first, of some figure on the margin of a book, then of a figure on the blackboard, and then, by reflection, we see that the size and shape of the diagram may be changed as much as we please, without altering the proof, and then we conclude that the proposition is universally true. And, as the whole number of triangles is absolutely unlimited, the truth applies to an infinite number of things.

So we say there are 60 seconds in a minute, and this is true of all the minutes in the infinite of time.

We say the joint effect of two forces, pulling in the same direction, is greater than of one of these two; and this truth is applicable to an infinity of forces.

The properties of infinites, as to their equality, inequality, ratio, incommensurability; their unlikeness, as being of different denominations; their homogeneous or heterogeneous natures, as infinite lines, surfaces, solids, times, and powers, might readily be introduced and insisted upon; but we must forbear. To introduce new witnesses to establish what a dozen credible men have already sworn to, would be idle in a court of justice; and we fear that the farther extension of our proof might be liable to this exception. We stop, then, with an infinite number of witnesses yet uncalled.

It might possibly be suspected that Sir William Hamilton may have been writing of some metaphysical infinite differing from the one we have been discussing. But he expressly limits his notion of the infinite to three kinds of quantity: space, time, and intensity. No other does he speak of, and no other seems to him possi-

ble. The infinite of number, which we have referred to, is merely an abstraction, belonging equally well to the infinity of space, time, and power. The one-ninth we have mentioned above, may be regarded either as the ninth of a second, or a foot, or a pound. So that the infinites of Hamilton cannot be suspected to differ in their nature from those we have been considering. In fact, the infinite of quantity, as Locke has observed, is the only true infinite, all others being merely metaphorical.

Nor can they be suspected to differ in their definition, even if of the same nature. For his reference to time shows that he considered the infinite future, and the infinite past, as well as the eternity made up of these two infinites, as properly included within his notion, and they correspond exactly with our definition.

Let us now review the arguments which Sir William has presented to sustain his opinion, that the infinite was entirely inconceivable.

His first position is, that the infinite is inconceivable, or unthinkable, because to think is to condition, or limit, and thus, thinking of the infinite is limiting the unlimited, which implies a contradiction.

"To think is to condition; and conditional limitation is the fundamental law of the possibility of thought. For, as the greyhound cannot outstrip his shadow, nor (by a more appropriate simile) the eagle outsoar the atmosphere in which he floats, and by which alone he may be supported; so the mind cannot transcend that sphere of limitation within and through which exclusively the possibility of thought is realized. Thought is only of the conditioned; because, as we have said, to think is simply to condition. The absolute is conceived merely to be a negation of conceivability; and all that we know is only known as won from the void and boundless infinite."—*Philosophy of the Conditioned*, p. 456.

Now, to this it is easy to reply, that the infinite may be limited without any contradiction. A thing may be limited in one sense, and unlimited in another. As a dress may be blue and red, as a printed page is both black and white, so a thing may be limited in one sense, and unlimited in another. When we select from the whole range of thinkable notions, the idea of space, we limit our thoughts to space only; and thus thought is limited, because referring to only one kind of things, but yet unlimited, because referring to the boundless universe. We may still further limit this totality of space, and confine thought to an infinite surface; and yet again, we can limit this conception to a single direction, and yet have an infinite line. So that, even if it be granted that to think is to condition or limit, the infinite would not yet be excluded from thought, for it may be limited in one sense and unlimited in another.

But again, when it is said, that to think is to condition or limit,

this is a mere assertion, a mere *petitio principii*, a *dictum* of Sir William Hamilton, which cannot be granted, and has not been proved.

We can think of all time, and space, and powers, and actions, and causes; all things, whether created or uncreated; all thoughts which have been or may be; and, gathering all into one mass, one wide unity, consider all as one unconditioned whole. This conception might want the usual definiteness of thought, but nothing prevents us from thinking it. This reply is, indeed, a mere assertion, but, as Sir William's is one also, ours is a sufficient answer.

Another reason for the inconceivability of the infinite, is thus presented:

"We cannot positively represent, or realize, or construe to the mind (as here imagination and understanding coincide) an infinite whole; for this could only be done by the infinite synthesis in thought of finite wholes which would itself require an infinite time for its accomplishment." —*Philosophy*, p. 454–455.

"We cannot conceive the infinite regress of time; for such a notion could only be realized by the infinite addition in thought of finite times, and such an addition would require an eternity for its accomplishment."—*Philosophy*, p. 473.

Such an argument, in the pages of Locke, or Hume, or Condillac, would be consistent with their philosophy, which derived all ideas from sensation and reflection; but from the pen of Sir William Hamilton, or of a modern Scotch philosopher, an admirer and a disciple of Reid, it is inconsistent with his fundamental principles. We observe the finite a foot, or a yard, or a mile. By the synthesis of these we can obtain the conception of the great and the immense. And if we could form new ideas only by synthesis or other similar reflective processes, the infinite could not be reached. But, as the mind supplies us with ideas of which the sense never gives us the elements, as Reid, Cousin, and Hamilton have most satisfactorily shown, we have many notions which come not in from without; we are not limited by the combinations of former ideas. We have power to outstrip experience, to create original conceptions, to present to consciousness ideas which had never been given us by our senses, and thus are not limited to the putting together of finite spaces or times. As we can suggest to ourselves the notion of space, or cause, or ratio, or equality, when sensation had never furnished us these, or the elements out of which these could be formed, so the idea of the infinite can be presented without the synthesis of finites previously conceived.

We think of the finite, we enlarge it, we make it immense; then, by one bold leap, we pass the boundary of the finite, and conceive the infinite. And nothing like the shortness of human life is a hindrance to this grand and sublime vaulting. The rapidity

of thought exceeds all description. In a moment, we mount from earth to heaven. In an instant, we pass the limits of the created universe, and fix our gaze upon the boundless infinitude of space.

This is equally true of our notions of large numbers. The star 61 Cygni, is 60 millions of millions of miles distant from the earth. Can we conceive this immense distance by the actual addition of elemental spaces such as have come within our experience? If a peasant who has never ventured out of the bounds of his native valley, or a traveller who had made the circuit of the whole earth, should attempt to put together the distances they had had experience of, they would not be able to construct the conception of this distance of the nearest fixed star, in their whole lifetime. And yet astronomy tells of stars a thousand times farther off, and no one suspects them of writing of what they do not conceive. As, then, our conception of immense distances is not limited to those which we can form by an actual synthesis; so the conception of the infinite is not rendered impossible by our inability to put together its parts, and complete the whole by such an aggregation.

The third argument of Sir William Hamilton against the conceivability of the infinite, is, that the idea involves contradictions; and the contradictory cannot be conceived:

"The negation of the commencement of time involves likewise the affirmation, that infinite time has already run; that is, it implies the contradiction that an infinite has been completed. For the same reasons we are unable to conceive an infinite progress of time; while the infinite regress, and the infinite progress taken together, involve the triple contradiction of an infinite concluded, of an infinite commencing, and of two infinities not exclusive of each other."—*Philosophy*, p. 473.

Now, if reference be made to the definition we have given of the infinite, it will appear that each of these three things, time past, time future, and the eternity made up of past and future, corresponds to our definition of the infinite; and the only contradiction which is evolved, arises, not from recurring to this exact definition of the infinite, but to a vague one taken from the derivation of the word. A quantity may have an end in one direction, and yet be infinite in the true and common idea of the term.

Nor is there any absurdity in two infinites, not exclusive of each other. We have infinite space, and infinite time, and an infinite God, all coexisting, and not excluding one another.

A fourth reason given by Hamilton, against the conceivability of the infinite, is, that the word is merely a negation:

"The two primitive ideas of Cousin, the finite and the infinite, are nothing more than contradictory relatives. These, consequently, of their very nature, imply each other in thought; but they imply each other only as an affirmation or negation of the same."—*Philosophy*, p. 471–472.

If, however, we refer to the definition given before of the infinite, we will observe that it is made up of a positive affirmation, without any negative. It is not defined to be the not-finite, but a quantity greater than any finite quantity. This is a positive assertion, and not a mere negation.

But, if by positive we mean existing, as Hamilton elsewhere mentions, then the infinite is positive; for there exists an infinite God, and an infinite space, and an immortal soul. Our author himself acknowledges this existence, for he says:

"By a wonderful revelation, we are thus, in the very consciousness of our inability to conceive aught above the relative and finite, inspired with a belief in the *existence* of something unconditioned, beyond the sphere of all comprehensible reality."—*Philosophy*, p. 457.

In taking leave of Sir William Hamilton's discussion of the infinite, we would acknowledge, without any hesitation, that our idea of the infinite is not complete and perfect. But we say the same of almost every conception of the human intellect. If we are asked what we mean by a metal, a triangle, or a number; by attraction, cause, substance, or phenomena; by God, angels, or men, and attempt to give a full and satisfactory answer, we will be almost sure to fail. So, to develope completely the idea of the infinite, is beyond our power.

So, also, would we say, that the comprehension of the infinite, by an attempt to enumerate its parts, or to bring together the elements that compose it, is impossible. Any effort to represent in thought, the infinitudes of space and time, by the addition of finite spaces and times, will always result in failure. And necessarily so, from the very definition of infinity. For the aggregation of finite spaces or times, gives an assignable magnitude; and infinity is something greater than anything assignable. We may pile Pelion upon Ossa, and roll Olympus upon both, but the heavens are not scaled. We may travel "from the centre thrice to the utmost pole;" we may "take the wings of the morning" and fly with the rapidity of light from "early morn to dewy eve," and the boundaries of space are not attained. And so, also, of time. But, though all this be granted, the mind is not estopped from leaping the gulf and arriving at the notion of the infinite by its own creative energies.

Here, doubtless, is the source of many of the erroneous reasonings of Sir William Hamilton, and of others who, in attempting to form a conception of the infinite by expanding their ideas of finite things, become lost in the immensity spread out before them. This is not the way that the notion of the infinite rises up within us. It comes from the inner depths of the soul itself; and, though it arises, as Locke has shown, during experience and in experience,

it cannot be produced by experience. It is an "original suggestion" of our inner nature. It is not formed, it cannot be formed, by the additions of the finite, nor by any revelations of the senses. It is created by the mind itself; and we know it best because thus created.

The philosophy of Sir William Hamilton is humbling to the human intellect. This is no objection to it. But it is some consolation, that he has not destroyed our faith in the infinite. With all the science of the past and the present to encourage us, with all the asseverations of consciousness to strengthen our confidence, we cling to the belief, that we know what we mean when we say that the great First Cause is eternal; that the extent of his dominion is the wide infinitude of space; and that he has made our spirits immortal and everlasting as his own.

Art. V.—SLEEP AND DREAMS.

The Philosophy of Sleep. By Robert Macnish, LL.D., Glasgow.

The mind has always been a subject for profound thought and curious speculation. Ever present to our consciousness, and manifesting itself by the unmistakeable signs of a real existence, the deep and dark mystery by which its nature is enveloped, only seems to stimulate the spirit of inquiry, and to urge us onward to still nobler and more heroic efforts. Its wondrous workings, who can fathom and comprehend! and yet, who that has the power of reflection, can, if he would, abstain from meditations upon its nature and influence! It is the great gift of God to man. His organism needs something more for the perfection of his being, than a mere principle of life; a power to put the machine in motion. This is found in the bestowal of mind; a principle superadded, with energies far more mysterious, and a nature far more exalted. This is the great, subjective, controlling power, which gives to man his preëminence, and opens up relations to the eternal, and infinite, the contemplation of which transports him beyond the bounds of earth, and points him to a life to come. It is this wonderful principle, with its powers of apprehending, judging, comparing, analyzing, reasoning, loving, hating, fearing, approving, and hoping, which constitutes his peculiar glory and excellence. Though indivisible, and existing in a perfect unity, it exhibits itself in many states, and presents a succession of the most varied, interesting, and intricate phenomena. To some of

these, we desire to call attention on the present occasion; not with the hope that we shall be able to remove the difficulties with which the subject is surrounded, but with the humbler design of exhibiting intelligibly the present state of opinion and knowledge. The opportunities for making original discoveries are afforded to very few; the genius which would enlarge the boundaries of science to any considerable extent, appears but once in centuries. The world presents at long intervals a Plato, an Aristotle, or a Bacon. We have always been struck with the sober truth and unaffected humility of the saying of Dr. Johnson: "Of those whom Providence has qualified to make any additions to human knowledge, the number is extremely small; and what can be added by each single mind, even of a superior class, is very little; the greatest part of mankind must owe all their knowledge, and all must owe by far the larger part of it, to the information of others."

If the Eleusinian solemnities were called, by way of eminence, "the mysteries," what shall we say of mind! To those who are initiated into the secrets of *its* nature, are exhibited a more resplendent light, and a more pitchy darkness; and there is a stronger necessity that they present themselves pure and undefiled. We have, too, to deal with the "lesser and the greater mysteries;" and in a spirit more holy, because of the greater sacredness of the subject, we propose to introduce our readers to some of them. In this paper, it shall be our purpose to discuss the subject of *dreams*. This is one of the states of the soul. The better to understand it, we shall be compelled to consider, by way of comparison, the state of perfect repose, or *dreamlessness*, the state of *profound sleep*.

Now, what is a dream? The lexicographers will answer, "a phantasm of sleep." It cannot be thus easily disposed of by a definition. In any attempt to answer the question, we shall have first to consider, what is the state of the mind in sleep; secondly, how are our dreams affected by bodily sensations; and how do changes in the condition of certain bodily organs operate in the production of phenomena so different from those which mark the waking hours? What is the state of mind in sleep?

Aristotle, in his Ethics, when speaking of the irrational and rational part of our nature, says of the former, that it is the cause of nourishment and growth; that it is common to all beings, and that it seems to energize in sleep; that the good and bad man are in sleep least distinguishable; and hence the saying, that for half their lives there is no difference between the happy and the miserable. He adds, that this is reasonable; for sleep is the inaction of the soul, so far forth as it is called good or bad, except in cases where some emotions, in a small degree, reach it; and in this manner the visions of good men become better than those of the

generality. In a state of profound sleep, then, there is, according to our author, a complete suspension of all the rational faculties ; of all those powers which distinguish man as man, and he relapses into the condition of the mere animal. He intimates very distinctly, a state of *dream*, when emotions reach the soul ; and, as the good man then has the advantage of the bad, he would seem to teach that the character of the visions is due to the particular thoughts and emotions about which they are habitually employed. Our readers will call to mind the elaborate argument of Locke, to prove that the soul does not always think ; and that sleep, unattended with dreaming, is wholly without thought. He adds, that the dreams of sleeping men are all made up of the waking man's ideas ; though for the most part oddly put together. Here, we have to note, in two striking particulars, a coincidence with the views of Aristotle. To be fully awake, is to be in the exercise of the intellectual and animal functions ; in perfect sleep there is a suspension of these, while very important changes are produced in the organic functions. The circulation and respiration are both lessened in frequency ; though according to many authors, the *force* is not impaired, but, on the contrary, rather increased. Digestion and absorption proceed with increased energy ; and so do certain of the excretory functions ; as, for example, the cutaneous. It is the *brain* that is in a state of sleep ; and this produces the repose of the other parts of the body. But it is not the entire brain, but the *cerebrum*, or the anterior lobes. The lower part is connected directly with the circulation and respiration, and there is just such a degree of suspension of its activity, as is necessary for a restoration of its energies ; a *complete* sleep of this part would terminate in instant death. Sleep may be regarded somewhat in the light of an intermediate state between life and death. In the Scriptures, death is constantly spoken of as sleep : " Our friend Lazarus *sleepeth*." The evangelist, in speaking of the stoning of Stephen, says, in reference to his death, " he fell asleep." Paul speaks of the witnesses of the resurrection, as having " fallen asleep ;" meaning the departed in Christ. Now, we have not made this allusion to the Scriptures with the view of discussing the question, whether death, or the state intervening between the separation of the soul and the body, be one of consciousness or insensibility ; but with the view of enforcing the doctrine, on the authority of inspiration, that, though not identical, there must be many points of striking analogy between them. We know that the state of the body in the two cases is entirely different, though they agree in this, that there is a suspension of the voluntary movements. In the suspension of all the functions connected with both the organic and animal life, death is distinguished from sleep. It is something more than a figure of speech to say, that every man carries two lives within him. These lives, though existing in

the most intimate relations, are yet very unlike in nature and character. It is not the destruction of our bodily organs *simply considered*, the termination of vegetative existence, which brings dismay to our bosoms; but it is because of the loss of animal life which attends it; the disruption of all those ties which connect us with external nature, and which are the sources of our most refined pleasures and elevated enjoyments. It is this, with its consequences, which appals the stoutest heart, and covers the grave with a mantle of darkness and horror. It is remarked by Bichat, that if it were possible to suppose a man whose death should embrace only the organic functions, and leave in existence the whole animal life, he would look upon the approaching end of his organic life with an indifferent eye, because he would feel that the happiness of existence was not attached to it, and that he would still be in a state, after this sort of death, of feeling and experiencing almost all that before constituted his happiness. Sleep is "the image of death," because we lose the consciousness of the existence of the world, of ourselves, and lie motionless. But it is not death, but

"Tired Nature's sweet restorer, ——."

Well has the poet included all animated nature. There is no animal which does not sleep. It is a law of life; and whether we look to the puny insect, or to man in the plenitude of his powers, there is a condition of necessity, and both alike, at stated intervals, are found to present "the image of death." What more impressive than this awful silence of nature, this seeming death! This similitude to death has been connected with the idea of sleep in all ages. Homer and Virgil call it the "brother of death," and its designation as "mortis imago, et simulacrum," has been equally the notion of the philosopher and the poet. We have said that all animals sleep, and we have to add that, with few exceptions comparatively, the night is the time appropriated to it. Aristotle was the first to record that fishes sleep, and sometimes so soundly that they may be readily taken by the hand. The reptile, the bird, the mammalia, all sleep; but we do not stop here. If we descend to the lower orders of animals, we find the same fact; and we have reason to believe that the necessity exists alike among all the classes of the invertebrates. That snails, slugs, the nautili and oyster sleep, is not doubted by the naturalist; and the same is true of the insect tribe. Below this, the difficulties of research are so much increased, that, for the present, perhaps, a limit has been set to our knowledge in this particular; but, from the analogies of organized existence, we are warranted in believing that the two conditions of sleeping and waking are found far lower in the scale of animals, than has ever been suspected. If we are asked to explain why all animated nature is thus compelled to spend

half its existence in a state of apparent death, we answer, that God has so ordered it. We are so constituted, that rest is not less necessary than action; the very idea of life implies waste, exhaustion, and decay. This condition has to be met by a process of daily, hourly restoration. Periodic rest is one of the means provided by the Creator, and by its aid the exhausted functions of nature are renewed, and the whole man rises as if to a new life, with a consciousness of renovated strength and vigour. It is the common possession of the rich and the poor; the great power which breaks down the inequalities of life, and dispenses equal justice to all.

> "Come sleep, O sleep, the certain knot of peace,
> The baiting-place of wit, the balm of woe,
> The poor man's wealth, the prisoner's release;
> Th' indifferent judge between the high and low."

Every one knows that the sleep of some persons is more profound than that of others; and that individuals differ in respect to the time devoted to the purpose. Though all must sleep, yet, within certain limits, it is much under the control of habit. In this way, we may fix the hours of retiring to bed and rising, the time to be spent in sleep, and the will may be so educated that we can fall to sleep at any moment, and awake at any period which we desire. Napoleon is a striking example of one who slept but little, and had the power of sleeping and waking when he pleased. Frederick the Great, John Hunter, and many distinguished persons, whose names we will not mention, are said to have slept but four or five hours. We will only add on this point, that though we will not deny that Jeremy Taylor slept only three hours in the twenty-four, we hesitate not to reject as an idle tale the fact given us by Dr. Gooch, that he knew a man who slept but fifteen minutes, and yet enjoyed perfect health to the advanced age of seventy-three. While there is a class of persons who sleep very little, there is another class who seem to have only a sort of vegetative existence, and, like the fabled Endymion, have the boon of perpetual sleep. The books contain many striking examples of this character. De Moivre slept twenty hours out of the twenty-four, and old Parr slept almost constantly at the close of his life. Some of our readers may profit by the following fact, given us by Blumenbach: A youth took a fancy that sleep is the natural state of man, and, following it out, slept eighteen hours out of the twenty-four, till he died of apoplexy. The amount of sleep is affected by various circumstances, such as the period of life, the temperament, the state of bodily health, &c. In general, young children sleep a great deal, middle-aged persons about a third of their time, while old persons sleep but little, and not profoundly, except when they pass into a second childhood. Heavy feeders,

whose digestive powers are good, sleep well, being thus twice blest. This is true in the lower animals, and probably holds good in all nature. Man is no exception. After a heavy meal he feels a disposition to sleep, and, without wishing to detract from his superior dignity, or to take ground against good, honest eating, when the digestive system will allow it, we must be permitted to say, that the fact should remind him that he is but a link in the great chain of animated existence, and that, in this respect, he reveals a common nature with the whole class of serpents, and the vulture-birds.

It would not be uninteresting to compare the sleep of the lower animals with that of man; but we have time only for a word. Each class or grade of animal presents its particular type or character of sleep, and the individuals of the class exhibit but little variety. For example, hares, dogs, and cats are light sleepers, while bears and turtles sleep heavily. In man, we find the greatest variety. Some are aroused by the slightest noise, while others are not disturbed by the roar of artillery. We have in view a friend, a gentleman of great intellectual distinction, whose sleep becomes so profound, when the god puts his magic spell upon him, that the highest of all influences, the influence of a wife, has to be brought to bear upon him every morning. In general, the sleep of the lower animals is lighter than that of man; and though, as we have already said, sleep is necessary to all, to man, if we may be allowed to make a difference, it seems to be more indispensable than to any other animal. Not a few of the lower animals sleep in the day, and prowl about at night. The carnivora sleep mostly in the day, while the herbivora, at periods of complete darkness at least, sleep by night. We have beasts of prey and birds of prey, who are night-feeders. These are exceptions, we think, to the general scheme of nature, and are blind instruments in the hands of Providence to accomplish a particular purpose. But to man it is otherwise. He has not eyes for seeing at night. When God said, "Let there be light! and there was light," there was a special creation for him. The glories revealed were for the contemplation of that creature who was formed after the image of his Maker. He was made a being, not of darkness, but of light. The brute has no perception of the beauties of nature. The shining orbs in the firmament, which cast their radiance upon the earth on which we dwell, and thus convert a pitchy darkness into forms of beauty, and make of nature one vast landscape, teeming with its varied and infinite glories, were intended for the eye of man, who alone can read in them the goodness and greatness of God, and the immortal destiny which awaits him. His eyes are not offended by the light, as in the case of certain birds, and many quadrupeds of the feline tribe. He has no nicticating membrane, like the owl, to teach him that the light was not made for him, and that

he is a creature of night. The naturalist speaks of *nocturnal* quadrupeds and birds, but in no system of classification is included the *nocturnal biped.* He is an artificial creature, and too frequently but a beast of prey in human form, who is prowling about in search of his victim in the darkness of night, when honest men are seeking repose from the virtuous labours of life. He moves not in the sunlight,

> "But when the dragon womb
> Of Stygian darkness spets her thickest gloom,
> And makes one blot of all the air."

Hence the whole machinery of nightwatch and police. Man, owing to the villainy of his fellow, has, like the goose, to post his sentinel; or, like the Scythian antelope, to keep some of his herd constantly on the watch, while others sleep; and, by concerted signals, to relieve guard.

But perhaps we have strayed away too far from our text; which is, first, to discuss the nature of sleep, the condition of the mind when in that state. At the very threshold of the inquiry, the question suggests itself, is it the sleep of the mind, or the sleep of the body? We do not design to decide the matter, but to us it seems that much useless ingenuity has been expended in the discussion. So far as we know anything about it, both become fatigued from long continued exertion, and both need repose for the renewal of their exhausted energies. An eminent writer of our own day has said, that he cannot understand what is meant by the expression, "sleep of the body." So far as our purpose at present is concerned, the terms convey a distinct and definite idea; that is, a state of rest, of repose of the sensorial organs or the organs of relation, of the powers of volition, and all the active intellectual faculties, while the organic continue in action. This, then, is sleep, whether we consider it in man, or in the lower animals.

We are strongly tempted, notwithstanding the confession which we have just made to our readers, to say a word concerning that very curious form of sleep, the sleep of hybernation. And yet it differs in its phenomena from sleep, strictly considered, and from every other state with which it may be compared. According to Jardine, it occurs among fishes, the amphibia, reptiles, and insects, as well as among some of the mammalia; as the bear, the beaver, and the hedgehog. As sometimes exhibited, it resembles death more than any other state; and yet it is not death. What a mystery is sleep, is death, is life! all is mystery. When Hunter tells us that snakes and fish, after being frozen stiff, will, when thawed, resume their vital functions; and when we read that animalculæ will revive, after being torpid for twenty-seven years, we believe, but stand amazed.

We might speak of the sleep of plants—a subject sufficient of itself for an elaborate essay. We will say but a word. In strictness, it is not sleep, but a condition analogous to it. Plants, like animals, are organized structures, endued with the principle of life, which works according to its own peculiar laws. It is not in place for us to mark the many and beautiful analogies which have been traced in these two kingdoms of nature; it is only the analogy of sleep with which we have to do. Plants have *irritability*, and not *sensibility;* which latter property we restrict to beings with a nervous system. This irritability is excited by their peculiar stimulus, which is the light. When this is withdrawn, they fall to sleep; and with the first rays of the morning sun, are aroused from their repose. Now the different organs commence their operations, and a new life is imparted to the whole plant. Like some of the lower animals, certain plants are nocturnal. A striking example of this, is to be found in the night-blooming cactus. We will only add, that Darwin and others, have given to some plants sensibility, and some of the passions of animals; but this is without any reason whatever. The sleep, so called, of plants, is entirely unlike the sleep of animals. It is only the repose of the vegetable irritability, which succeeds the withdrawal of the peculiar stimulus which excites it.

It is to be remarked that there is a peculiar structure of organized bodies, by which they are accommodated to the time of the revolution of the earth on its axis. This time, we may well conceive, might have been longer or shorter than it is, as we know to be the case with other planets. There is no apparent reason why our earth should revolve on its axis just three hundred and sixty-six times, while making its circuit around the sun. Now, the proposition is, that in both plants and animals, certain functions have a periodical character, which are adjusted to the time of this revolution, and to the succession of night and day. The many facts which have been observed, and the curious experiments which have been made, would seem to place this beyond question in the vegetable world. "It is clear, from the facts," says Whewell, in his Bridgewater treatise, "that there is a diurnal period belonging to the constitution of vegetables, and, though the succession of functions depends, in part, on external stimulants, as light and heat, their periodical character is a result of the structure of the plant; and the structure is such, that the length of the period, under the common influences to which plants are subjected, coincides with the astronomical day." "Animals, too, have a period in their functions and habits; and their wellbeing depends on the coincidence of this period with the length of the natural day." All animals take their food and their rest in the period of twenty-four hours; and in all ages, and among all nations, this has been the law of man. This is not the result of external circumstances,

but is in accordance with the nature of his constitution—the necessities of his being. There is, then, a periodic inclination to sleep, as truly as there is a periodic law in any of his functions, and no power of habit can shorten or lengthen the interval without limit. No training could ever introduce alternate periods of twenty-four hours for employment, and twenty-four hours for sleep, or eight months of uninterrupted exertion, and a single sleep of four months. We conclude, then, that our present constitution will not allow of any radical change; that as long as man is as he is, he must, within certain unimportant variations, take his rest in the course of twenty-four hours; and that, after making the fullest allowance for his acquired habits, he is, in this respect, under the strong rule of a natural, periodic law. These speculations are confirmed by Cabanis, and other eminent physiological writers. Nor has this matter escaped Dr. Paley. In his Natural Theology, chap. xvii., on the Relations of Animated Bodies to Inanimate Nature, he enumerates among the relations, that of sleep to night; a relation, he remarks, which was expressly intended. Animal existence, according to him, is made up of action and slumber; nature, by the very disposition of her elements, has commanded and imposed upon man, at moderate intervals, an intermission of his toils, his occupations, and pursuits. "The relation of sleep to night, is the relation of the inhabitants of the earth to the rotation of their globe; probably, it is more; it is a relation to that system of which the globe is a part; and still farther, to the congregation of systems of which theirs is only one."

But we proceed to the second division of our subject; *imperfect* sleep, or sleep attended with dreams; and we have to consider the influence exerted by bodily sensations. The nature of dreams, "the stuff which they are made of," and the causes which produce them, present a psychological problem of great difficulty. But this is the difficulty which is experienced in all our investigations; and if it be found more formidable in the inquiries concerning man, it is only because of the higher, more complex, and exalted nature of the subject. But we have acquired possession of certain facts of a most interesting character; and we may be said, therefore, to know something, though the deeper mysteries are yet concealed from our view. Philosophy has offered her aid, and speculation has succeeded speculation, but yet the dream, "the phantasm of sleep," is as little understood as in the days of Lucretius or Democritus. The first man, no doubt, dreamed, and as we have inherited all the peculiarities of our great progenitor, the world has been dreaming ever since. In reading the most ancient records of our race, we mean the Bible, we perceive that men dreamed as much then as now, and that it is not a modern accomplishment. Our readers will call to mind the dream of Jacob about the ladder which stretched to heaven, and the angels

ascending and descending; and of Pharaoh, which is very particularly narrated by the historian. We learn from the record, that dreams were then regarded as things not to be despised, and that there were persons who claimed to have the power of interpretation. "And Pharaoh said to Joseph, I have dreamed a dream, and there is none that can interpret it, and I have heard say of thee, that thou canst understand a dream, to interpret it. And Joseph answered, It is not in me; God shall give Pharaoh an answer of peace." The dreams, as we read, were correctly interpreted by Joseph, after the magicians and wise men had failed to make a plausible conjecture as to the meaning of them. We know not the rules by which these ancient magi were guided in their interpretation. In more modern times, the various kinds of dreams have been subjected to classification, and formal rules for divination and prediction have been given. Plutarch tells us, in his life of Aristides, that a certain Demetrius, in his life of Socrates, asserts, that he remembered one Lysimachus, grandson to Aristides, who plied constantly near the temple of Bacchus, having certain tables by which he interpreted dreams for a livelihood. In all ages this has been a trick of imposture, or a conceit of superstition; and to some extent it exists at the present time. In the reign of Antoninus Pius, one Artemidorus gave full rules for interpretation. Our readers may be disposed to laugh at them, and yet they may now be indulging some form of credulity equally idle and frivolous. To dream of a big nose, signified subtlety; of a leopard, a deceitful person; of rosemary or sage, trouble and weakness; of a midwife, disclosure of secrets.

Dreaming may be said to be universal; though, it is true, we read of some persons who are said never to dream, while others know nothing of profound sleep. It is more true, perhaps, of the former, that they dream without remembering it. Stewart records of Dr. Reid, in his account of his life and writings, and on the authority of the great philosopher himself, that in the early part of his life, he was, almost every night, unhappy in his sleep from frightful dreams; and that for forty years of his after-life, he dreamed none, to the best of his remembrance. We will recur to these facts in a future part of this article, for a special purpose. Children dream, we may say, from their very birth, and their dreams are generally accompanied with terror. Let not the young and inexperienced mother take alarm at the disturbed slumbers of her child, and vainly imagine that its sleep should be a sweet and gentle repose, the image of peace and innocence. The impressions made in dreams, at this susceptible period, frequently continue through life; and memory may call up the horrid phantom long since passed away, again to disturb our peace and haunt our imagination. In the maturity of life and in a state of health, with the soul at peace, we dream less than at any other period; and

when we dream, the dreams are of a pleasant character. Advancing age produces its effect. In old age we dream more than in middle age, but the dreams have the same general character.

The wonderful activity imparted to the mind, is a curious fact in the philosophy of dreams. We have striking facts in illustration of this point, in the lives of Alexander, Voltaire, Franklin, Coleridge, and others. Plans of battles were sketched; poems were composed, and problems were solved, in less time than these things could have been accomplished in our waking hours. The dream of Lavalette, when under sentence of death, is one of the most impressive examples of this law of dreams which we have met. The story is briefly this: One night, when asleep, the clock struck *twelve*, and awoke him. He heard the gate open *to relieve the sentry*, and immediately fell asleep again. In this sleep he dreamed, that he was standing in the street; a melancholy darkness was around him—all was silent; a slow and uncertain sound soon arose. On a sudden he perceived, at the bottom of the street, and advancing towards him, a troop of cavalry, the men and horses all flayed. The men had torches in their hands, the red flames of which illuminated faces without skin, and bloody muscles. Their hollow eyes rolled fearfully in their large sockets; their mouths opened from ear to ear, and helmets of hanging flesh covered their hideous heads. The horses, with both sides overflowing with blood; pale and dishevelled women appearing and disappearing at the windows, in dismal silence; low, inarticulate groans, with the passage of the horrible troop in a rapid gallop, and casting their frightful looks at him; the following of immense numbers of artillery; wagons full of bleeding corpses, with quivering limbs; a disgusting smell of blood and bitumen; these completed the picture. In his dream, this dreadful scene continued *for five hours*. He awoke, made his repeater strike, and it was *no more than midnight*. Thus, it will be perceived, that all this occurred within a few moments of time. This leads us to remark that the *terror* felt in sleep, or rather in dreams, is far greater than any which we experience in our waking hours. This is a curious feature. Why the soul should be more overwhelmed in this state; why the sense of unrepented guilt should have a deeper conviction; why the scenes which, when awake, we can contemplate with a calm couarge, or meet with a manly heart, now strike panic and alarm, and make cowards of us all; why this, philosophy will attempt in vain to answer. The beautiful world without, and the vast world within, present to our minds, a countless number of objects for observation and reflection; and human thought, therefore, would seem to be varied, and diversified almost without limit. But, oh, the vast accession which is made from the world of dreams! Here is a territory vast and interminable in its dimensions, with a landscape far richer than any which was ever

lit up by a noon-day splendour, inhabited by sylphs and fairies, and ghosts and goblins damned; a region where the human mind, let loose from its shackles, may travel forth with a liberty unknown to earth, where love, and friendship, and hope, and joy, and anger, and ambition, and lust, may reach their utmost height; where the past is reproduced, the future is anticipated, as if with prophetic vision; and where all, all is present, and impresses itself as a living, certain, and eternal reality. Oh, the mighty, the limitless expanse, the ten thousand times ten thousand new objects for thought and meditation! Here is enough for all, and, one might almost think, sufficient to satisfy the cravings of the immortal spirit. There is beauty in the thought of Heraclitus, that "all men, while they are awake, are in a common world; but that each, when he is asleep, is in a world of his own." Thank Heaven, if there be dreams which plunge our souls into a depth of misery never experienced in waking life, there are dreams, too, which give a keener edge to pleasure, heighten our purest and most refined enjoyments, and bring a foretaste of that more perfect happiness which we are to possess in a future and better state. Oh, is it not a pity that we are to be aroused from this elysium, this paradise; to be summoned from a region of angelic beatitude, where there is nought to disturb the bosom, but where vision after vision of glory succeed each other in continuous circle,—is it not to be regretted, that we have to leave all this, and plunge into a world of distracting thought and varied trouble, from which the wisest and best even can make no escape! Is it only an idle conceit of many philosophers, "that we are somewhat more than ourselves in our sleep, and that the slumber of the body is but the waking of the soul!"

"Cum prostata sopore
Urget membra quies, et mens sine pondere ludit."

That the lower animals dream, is a thing of common observation, and it is not, therefore, to be questioned. Dogs, cats, and hares furnish the most unmistakeable signs, and this is certainly true of all the higher animals. The ruminating class is believed to dream less. Naturalists tell us that some birds dream, and among these is mentioned the parrot. We believe that we have seen the canary singing as beautifully when asleep as when awake. The difficulties in the way of investigating the fact with respect to the lower animals, are very great; but there is reason to believe that dreaming is far more general among them than is imagined. We will not debate the vexed question, whether they have a soul; they have certainly something apart from mere life—we will call it *intellect*—and the capacity to dream is associated with this power. Now, at what point in the descending scale this capacity ceases, we cannot determine. But we cannot help saying, that

we would like very much to hear a snake or a fish tell his dream. Oh, may there not be a land of glorious vision, a land of higher enjoyment, for these despised and persecuted of earth, to which they too may retreat, and draw new and untold delights from the rich cornucopia of fancy!* Perhaps the poor oyster may dream; Locke gives to him, it is true, a dull and obscure perception; but who will say that there is not enough to build a dream upon! Reader, what would you not give for the dream of a bee, a butterfly, or a humming-bird! If dreams be made up of the ideas experienced in the waking state, we may form some slight conception of the dreams of these little, happy, joyous creatures of God's hand. The world is one vast garden, with its parterres of evergreen and flowers. Spring and summer are the only seasons, and the bright, cheerful sunshine is ever present. Purling brooks, reflecting from their glassy surface light and shadow, meander gracefully through the variegated foliage. The early bud, the opening and the fullblown flower, distil their fragrance; and the air is redolent with a sweetness, sweeter than a bank of violets; a dewy perfume, far more enchanting than was ever wafted by the spicy breezes of Ceylon. The earth is clad in perpetual verdure, and happy spirits are dancing on its rich green carpet. From flower to flower pass a busy, joyous throng, now extracting the delicious nectar from the deep recesses of the corolla or the petal, and now disporting in the fragrant, balmy air. All is peace, all is stillness, save the gentle, soothing hum which strikes upon the ear, like the echo of distant melody.

We assert nothing, but we defy philosophy to prove that our little brethren of the kingdom do *not* dream, and somewhat after the fashion which we have represented.

But it is time for us to consider the influence of bodily sensations upon sleep and dreams, and we will endeavour to estimate the extent to which these sensations will serve to account for the phenomena. Our inquiries, of course, must be directed to the nervous system, and principally to the brain, the great centre of the sensorial power. This mysterious influence goes forth from it, and is propagated, as if by electric wires, to every part of the system. But there are periods of exhaustion, which are indicated by a feeling of languour and lassitude, heaviness of the eyes, yawning, relaxation of the muscles, drooping of the head, and a growing indifference to surrounding objects. Finally, the senses become sealed against impressions; the world fades away; complete unconsciousness succeeds; and sleep, "the image of death," closes the scene. The speculations as to the cause of sleep are various,

* In all ages of the world, many have indulged the notion, that there is a compensation for the sufferings of lower animals in the present life.

but all concur in the belief, that the cause is to be found in a particular condition of the brain. This organ is clothed with the mental function, and, for the operations of the mind, it must be maintained in a *certain state.* This is no less true and obvious, than that the eye and the ear must be in a particular condition for seeing and hearing. Is physiology competent to explain the mystery of sleep? We think not. There may be diminished action in the cerebral circulation, and there may be a less supply of arterial blood: these may be facts presented in sleep; but must they be regarded in the light of a cause? Again, we hear of a peculiar condition of the *nerves* of the brain, of a *reflux* of a great portion of the blood to the heart, of the deposition of *fresh matter* on the brain, and its *sudden pressure*, of congestion in the *sinuses:* all these, and many other facts may be accepted as true; but are they the causes of sleep, or merely attendant phenomena? We must take care and not confound *causes* with *conditions.* Life and thought will only manifest themselves, so far as we know them, through a special organism; but who will identify the vital principle, or the thinking principle, with the organs or the instruments? But, we take it, there is an efficient cause, lying deeper than all this, which will exert itself only under favourable circumstances; and, as sleep is made a law of life, these circumstances recur at periodic intervals, which, in a state of nature and health, are fixed and determinate. Man here, as elsewhere, has a power within certain limits. He may for a time prevent sleep, or he may superinduce it. In either case, however, he must avail himself of nature's laws, and preserve or beget the condition of the system which alone makes them possible. We conclude this point by saying, in a word, that we know not sleep, as the schoolmen would have it, *in its essence*, or, as the doctors would say, in its *proximate* cause; but we do know many of its conditions and phenomena; the state of the body with which it *is* and it is *not* compatible.

We will not enumerate the various influences which, by operating upon the body, produce sleep; for our readers are familiar with them. Dugald Stewart discusses very fully the subject of dreams. In sleep he conceives the will loses its influence over all our powers, both of mind and body, in consequence of some physical alteration in the system, which we shall never probably be able to explain. The will, then, is not suspended, but is without authority over the faculties and members of the body, which it governed in the waking state. He adds, as a proof that the powers of volition are not suspended, that we are conscious of making efforts in our dreams, which efforts are generally unsuccessful. Now, if this be true, no trace of mental operations connected with the will should be found in our dreams. But Stewart has fallen short of the full conception of the state of the mind in sleep. The will is but one power of the mind; in perfect sleep

there is a suspension of all the powers of the understanding; and it is in consequence of this that the will is not exerted. In dreams, some of the intellectual faculties are active, and there is more or less exertion of the will. Darwin and other authors insist, that the power of volition is completely suspended, while it is to be observed, that Stewart differs in this, that the power *exists*, but, being bound in chains, cannot be exercised. We feel the great difficulties of the subject; but are we not puzzled, when we think of men rising from bed, dressing themselves, going to various places, walking upon the tops of houses, striking a light, writing, composing poetry, music, performing various acts which indicate the *utmost earnestness of purpose*, retiring again to bed, after having resumed their night attire; we repeat, are we not puzzled when we attempt to explain all this, upon a hypothesis which excludes the action of the will altogether? The fact, that when we are awake we know nothing of it, does not, of course, prove that the will was not in it, but simply that a very feeble impression, if any, was made upon the memory. No doubt the operations of our minds, and the actions of our bodies in sleep, are, in general, involuntary. In sleep, the thoughts are not regulated, generally, by the judgment; and the will operates blindly. We see this in our waking hours. Can thought be always kept under the dominion of the will? The purest and the most strong-minded have thoughts, which in the very depths of their moral nature, they loathe and abhor; and the will may strive in vain to expel them forever from their bosoms; but come again they must; and the heart of man is, at best, like a nest of unclean birds. We assert nothing, but let it *be proved* that the mind has not its will and all its native energies during sleep, only modified, and diversified by the peculiar condition of the circumstances by which it is surrounded. But the objection to the theory of Stewart may be expressed in a word. It is conceded, that without the action of the will, there can be no *attention;* and without attention there can be no *recollection*. But according to Stewart, in sleep there is no action of the will; how, then, does recollection of our dreams become possible? Stewart, in a lengthy note, written some time after the publication of his paper on dreams, exhibits some distrust of the entire soundness of his speculations; and in recommending the subject, remarks, "that, among the astonishing appearances exhibited by the mind in sleep, a very large proportion are precisely analogous to those of which we are every moment conscious while awake. And if the existing causes of our dreams be mysterious and inscrutable, is not the fact the same with the origin of every idea or thought, which spontaneously solicits our notice?" It is the belief of many physiologists, that certain vessels in the brain secrete a nervous fluid, or concentrate electricity, which latter substance, Faraday thinks, constitutes the animal portion of

the nervous system. This influence may be profusely accumulated in a waking state, and the resolution to act has been formed; or there may be a rapid accumulation of it in sleep, when the impression becomes uncontrolled, and sleep-walking, or somnambulism, takes place. Cabanis gives the order in which the different parts of the body go to sleep; first the legs and arms, then the muscles which support the head and back; the first sense that goes to sleep is the sight; then follow in regular succession, the senses of taste, smell, hearing, and touch. The viscera fall asleep one after the other, but the sleep of some is sounder than that of others. These facts, according to those who believe them, will go far to explain the wild and strange character of our dreams, as constant action and reäction are going on between the waking and sleeping organs. Dr. Rush, in his work on the Diseases of the Mind, says, that dreams are always produced by morbid or irregular action in the bloodvessels of the brain; and that a dream may be considered as a transient paroxysm of delirium, and delirium as a permanent dream. This idea has met with favour from many English writers. But, if dreaming be madness, is it then explained? What an awful mystery is a mind deranged! Baxter tells us that dreams are produced by the direct agency of spiritual beings, who have access to the sleeper's brain, and inspire him with various ideas; and it is an old notion of philosophy, and the Cartesians have been charged with it in modern times, that the soul is always dreaming in sleep, and that the cause is to be found in the nature of the soul itself, and that it is wholly independent of all external influences. The Peripatetics taught, that dreams were produced by a presaging faculty of the mind; and many other sects held that they were the suggestions of demons. Democritus and Lucretius accounted for them on the hypothesis that *simulacra* and spectres of corporeal things emanated from them, which, floating in the air, assailed the soul. But have we not said enough? Have we yet reached the *philosophy* of dreams? The reader perhaps will answer, that he is yet at the threshold; that he has been amused by the idle guesses and empty speculations of the wise of earth, but that the great secret is still concealed from view, and probably will ever remain unknown to mortal man.

But, whatever may be the precise value of these respective suggestions, and disclaiming all purpose to commit ourselves to the support of any one of them, we embrace, without hesitation, the doctrine that dreams may be affected and controlled within certain limits, by bodily sensations; and that not unfrequently the peculiar type and character of the dream may be traced directly to the particular sensation. We may be aided in our further investigations, by calling attention to the usually received classification: 1st. The common dream, "the image of death," in which the body is motionless. In this case, the ideas disturb not

the quiet of repose, nor give any external signs of their presence. 2. Somniloquence, which is attended by the power of speech. 3. Incubus, or night-mare, the ephialtes of the Greeks. Of all forms of dreams this is the most horrible and distressing, and imagination will in vain strive to depict it in its stern, forbidding reality. It is protean in its horrors, but always marked by a feeling of unutterable despair. The respiratory and circulatory functions are oppressed, the sensation is one of dying, the will is entirely torpid, the consciousness is active; there is entire inability to move, and the most frightful spectres haunt the fancy. 4. Somnambulism, where there is the power of moving in accordance with the ideas or wishes of the dream. We propose to treat mainly of the first of these divisions. Abercrombie, in his work on the Intellectual Powers, remarks, that the peculiar condition of the mind in dreaming appears to be referable to two heads—

1st. The impressions which arise in the mind are believed to have a real and present existence, and this belief is not corrected, as in the waking state, by comparing the conception with the things of the external world;

2d. The ideas in the mind follow each other according to associations over which we have no control.

We will not discuss these propositions particularly; but we cannot accept them in the broad and unqualified sense in which they are presented. Comparison is not unfrequently exercised in dreams, and a judgment pronounced. We have often debated the question, when in a dream, is this a reality, or is it a dream? and after examination, and weighing the reasons, *pro* and *con*, we have come to our conclusions. So many of our acquaintances have told us of the same thing, that we are disposed to believe that it is by no means rare. Our feelings enter most deeply into the inquiry, and we look with greatest interest to the determination of the judgment; at one time anxious that it be pronounced a reality, at another time nothing but a dream. It is true that *a dream* is scarcely ever *declared a dream*, but we have the most explicit testimony that this is sometimes done, and thus the illusion is corrected. We think there are very few minds in which this does not take place occasionally. The case of Dr. Reid, to which allusion has been made in a former part of this article, is a very striking one, and will be here given in illustration. It will be remembered that, in the early part of his life, he was troubled by the most distressing dreams. He formed the purpose to get rid of them if possible, or at least to save himself from the unhappiness which they produced. To this end he impressed his mind with the thought, that he never was in his life in any real danger, and that every fright he had was a dream. After many fruitless endeavours to recollect this when the danger appeared, he effected it at last, and then, when sliding over a precipice into an

abyss, he would know that it was a dream, and boldly jump down. Thus the dream would be terminated, and he would awake, calm and intrepid. Dr. Beattie gives a similar fact in reference to himself. He once dreamed that he was standing in a peculiar situation on the parapet of a bridge. He debated with himself whether it was not a dream, and, coming to the conclusion that it was, he determined to throw himself headlong, in the belief that this would restore his senses, which accordingly took place. These cases are further remarkable, as showing the power of the will in dreams.

In reference to the second proposition, we will only remark, that our ideas probably follow each other, not according to any new principles of association, but according to the very principles which obtain in our waking hours. Our thoughts in both cases proceed in a train; one suggests another, that another, and so on in succession. No doubt owing to the more vigourous exercise of the fancy, and the diminished activity of the judgment, our ideas are very oddly tied together, and connections are formed upon very slight grounds. Every one knows how impossible it is, even in the thoughts of a waking man, at all times to trace the connection; and yet the person himself has been carried from idea to idea by principles of association, and is able to exhibit a connection in the whole series. In sleep, the memory generally is weak, and the ideas of the dream do not impress themselves upon it. In our common dreams, therefore, nothing is remembered. It is only when the *entire* dream has impressed itself, that it can be recalled in its completeness when we awake. This is the case when it has extraordinary interest, and has excited the most vivid feelings. Here the attention is deeply absorbed, and it sinks deep into the memory. The remembrance of our dreams is generally partial. It is only here and there, so to speak, and perhaps at wide intervals, that the dream impresses itself; and as a necessary consequence, the ideas seem to be a perfect jumble, and utterly wanting in connection. It is probable that the appearance would be very different if the whole series could be reproduced; and the parts would then hang together. It is a well known fact, that the recollection of our dreams is frequently very imperfect upon our awaking, but that after the lapse of a considerable time, they are fully brought to our knowledge; this is produced by the occurrence of some circumstance with which the dream is connected. With the remark that we have very little control over the flow of our ideas, whether asleep or awake, we dismiss the matter.

Abercrombie remarks, that one of the most curious objects of investigation, is to trace the manner in which the particular visions or series of images arise. In this view he gives us four varieties of the dream: 1st. From wrong association of new events; 2nd. Trains of thought from bodily association; 3d. Revival of old associations; 4th. Casual fulfilment of a dream.

The mingling of recent events and recent mental emotions with each other, or with old events, is presented in many forms. It is probable that they have some property or character, which serves as a basis for their combination; and it is hard to conceive that the mind acts independently of all law. It may be that these events, though occurring at long intervals, may agree in having excited the same feelings in our bosom, and having left a similar impression. But it is further to be observed, that the ideas of our dreams are sometimes so intermingled with the ideas of our waking hours, that the separation becomes difficult, if not impossible. This is especially the case with young persons, and with others whose dreams are vivid.

Nothing is more common than for the ideas of our dreams to be suggested by bodily sensations. Dr. Reid says of himself, that a blister on his head having produced considerable uneasiness, he dreamed of falling into the hands of savages, and being scalped by them. We have some amusing instances of dreams being produced by whispering in the ears of sleeping persons. At a time of great alarm in Edinburgh from an apprehended French invasion, *the falling of a pair of tongs on the hearth* produced in an officer a vivid dream of guns, and signals, and reviews of troops, which were mistaken for the firing of the castle guns, and the chain of signals.

The revival of old associations, and the renewal of long-forgotten ideas, are frequently characteristic of dreams. Perhaps there is no more singular feature than this. That the mind should be able to recover in a dream that which the most strenuous efforts in our waking hours would fail to accomplish, is truly surprising; yet of the fact there can be no doubt. Valuable papers, sums of money, &c., have been recovered by information imparted in dreams; and various important facts have been thus communicated.

All writers speak of dreams which seem to present a sort of *prophetic* character. We have thousands of marvellous stories in illustration of this; and there can be no doubt that by far the greater part of them are pure fictions. But, granting this, it is yet true, that the suggestions of our dreams are sometimes fulfilled in the experience of actual life. A few facts such as the following seem to be well authenticated: A lady dreamt that an aged female relative had been murdered by a black servant, and the dream occurred more than once. She went to the home of the lady, and prevailed upon a gentleman to watch in an adjoining room. At three o'clock in the morning, the gentleman, hearing footsteps on the stairs, left his place of concealment, and met the servant going to his mistress's room, armed with a strong knife to kill her.

We have again to remark, that the same laws of association govern our thoughts, whether we are asleep or awake; and could

we remember our dreams in their completeness, there would be no more mystery in the one than in the other, so far, at least, as the fact of relation is concerned. The raw material, so to speak, of our dreams, is to be found in the ideas of our waking hours; and the mind, no doubt, has in sleep the power of performing various operations upon them; such as abstracting, compounding, comparing, &c., which processes are modified by the circumstances of its peculiar condition. Physical phenomena, corporeal impressions produce certain sensations in the nervous system; the mind is aroused to its activities, and displays its own inherent powers and energies, which cannot, by possibility, be ascribed to matter. Whatever may be the dependence of the mind upon the brain, and of the brain upon external influences, certain it is, that the mind has a nature and laws of its own, which give to it the power, when excited into action, of working after its own will, according to its own mode of existence, and manifesting phenomena which have no counterpart in external nature, and whose origin is only to be traced in the mysteries of its own being. In a dream the mind may be employed about present corporeal sensations, or ideas from sensation experienced in the waking state, or those other ideas which Locke calls ideas of reflection, or with other ideas which may be originated in the dream by *operating upon the material already in it.* The order and nature of the dreams will depend upon the nature and character of the sensations, and the ideas of the individual; and, in a more restricted sense, it may be said, perhaps, that whether in sleep or in the waking state, the present man is but the reflex of the past. We are aware of the various disturbing and counteracting influences to which this law is subjected, when we look at it in its application to dreams. We know that similar disturbing causes exist in the mind and body of the waking man. We assert, then, that the dreams of a vigorous-minded man exhibit far more thought and consistence, than the dreams of a fool; that the dream of the poet will be marked by a degree of beauty and fancy, which will never be found in the dreams of one who is a stranger to the enchanting glories of the imagination; that the clergyman dreams of his pulpit, the lawyer of his briefs, the doctor of his patients; that the pure in heart will be pure in his dreams; that the good man dreams of heaven, and the bad man of hell. An ancient poet has said that—

> "Dreams are in general reflex images
> Of things that men in waking hours have known:
> But sometimes dreams of loftier character
> Rise in the trancèd soul, inspired by Jove,
> Prophetic of the future."

After all, our dreams are no more mysterious than our waking thoughts. They proceed upon the same laws, and are alike inex-

plicable. They are, in both cases, the workings of the same immortal spirit, which, in its vast expansion, spreads itself over eternity. The full nature and history of the soul can only be read by us when we have powers far transcending anything of which we have now any conception. We have said that a dream sometimes seems to be *prophetic*. If it should so happen that a dream is fulfilled, we suggest that the fact may allow of explanation on a well-known principle. It is probably true in all such cases, that the matter is one which has been seriously and carefully contemplated. The attention has been deeply enlisted, and the ideas are well engraved on the memory. Suppose one should dream that in a certain district of the State a Mr. A. was murdered on a particular day, by a stab from a knife, and it should turn out that the dream was fulfilled. Now this would be regarded as a most extraordinary dream, and the gifted dreamer would pass for "a prophet, or the son of a prophet." And yet, upon a nearer view, there may be nothing very wonderful in it after all. He knew that on the very day there would be a large assemblage of the people; that the matter which was to bring them together was of a most exciting nature; that the people would partake freely of alcoholic drink; that many of them would be armed with knives; that blows would be given; that Mr. A. was an offensive, dangerous man, and that he was always conspicuous on such occasions; the relations of Mr. A. were of such a character, as to make the coming occasion the subject of frequent thought, and to induce the liveliest apprehension. Is there anything strange in the fact, that the ideas should be exhibited in a dream; and that they should come in the very way in which they were presented in the waking hours! Had the same individual, when awake, expressed a belief that such an event would take place, its occurrence would not have given him the reputation of a prophet, but it would have been regarded as an opinion based upon pretty fair grounds; and no more astonishing than the fulfilment of many expectations which are common in everyday life.

Let us now look at the case of a renewal of long-forgotten ideas where the mind is capable of recovering in a dream that which the most persevering efforts of our waking hours fail to accomplish. We will take, by way of example, the case of the discovery of legal papers in a dream, as recorded in Sir Walter Scott's notes to the Antiquary. Perhaps it is not necessary to resort to extraordinary or supernatural agencies, and we may be able to find a plausible explanation in the well-known laws of the human mind. Ideas are linked together in various ways, and writers have given us various principles on which the mind proceeds in its associations. We all know how difficult it is sometimes to call up an idea; indeed it may refuse altogether to come at our bidding. And why? because we cannot strike the particular

chain of thought of which it forms a link, or the idea or ideas with which it is associated. At another time this takes place most unexpectedly, when it would seem that it had been erased from the memory; when it has been so long in the sleep of oblivion, that at first we know not but that it may be an idle conceit, and are reluctant to recognize it as a former acquaintance. Now, in dreams, thought succeeds thought, according to the principles of association. The mind is drawing upon the past, and it may by chance hit upon a fact, or a series of facts, which it failed to do in its waking state; and thus a particular idea may be recovered. This might be brought about, for example, by the particular condition of the body when we are asleep. A certain state of the brain might be produced by a *heavy supper of oysters*, and a particular direction given to the train of thought, which *might* include long-forgotten ideas.* We see nothing more wonderful in this, than in those curious and spontaneous processes by which the mind travels back into its past history, and untwisting thread after thread, evolving fact out of fact, at last reproduces an idea in all its original brightness, which no effort without such labour could ever have brought to light. We must not separate the soul awake from the soul asleep. In both cases it is the same individual soul, with its particular experience, thinking and acting in obedience to those laws which are impressed upon it. It is this which has will, memory, the gift of reason, which in this life has to manifest itself through a corporeal medium, liable to constant variation, and therefore modifying perception and emotion almost without assignable limit.

It is a common opinion of writers on the subject, that we never dream of objects which we have not seen. Abercrombie repeats it, and remarks that he cannot decide the point. We are bold enough to say positively that this is a mistake; that it is not uncommon to dream of objects which we have never seen. We are surprised, indeed, that any respectable writer should have given expression to such an opinion. And why should not a man who has repeatedly thought of London, of Paris, of St. Petersburg, and pictured their houses and their streets in his mind, dream of them? Such dreams, in which a variety of visual objects which have never been seen, are well defined and depicted, have been experienced by thousands; and the fact is in strict conformity to the common law, that dreams are composed of our waking ideas. There is no magic-wonder in this; no second sight; no charm;

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* Lest the reader might suppose this a very trifling suggestion, we will take refuge under Pythagoras, who laid it down as a rule to his disciples, that they should not eat *beans*, because they would produce perturbation in our dreams, and give a wrong direction to our minds.

no special illumination; no necessity for spiritual or miraculous interposition.

The history of man is a history of imposture, superstition, and divination under its various forms. Melampus, according to the ancient writers, was the first person who practised divination. Homer speaks of him in the Odyssey, as a soothsayer in Pylos. Man has always felt his incompetency to fathom the depths of knowledge, and has, therefore, resorted to superhuman or extraordinary influences. The politic ruler and the artful priest, have ever speculated upon his curiosity, his weakness, and his credulity. Determined to know the unknowable, to grasp the deepest mysteries, his desires have been gratified by tricks and cheats, which he has fondly embraced for the reality of truth. Evil spirits and good spirits have made their hourly revelations, and the lying oracle has received the homage of divinity. The oaks of Dodona, the Egyptian apis, the Pythian prophetess, and the cave of Trophonius, have poured upon him their full inspirations. Nay, more; by enchanted rings, by the nails of a child, by the head of an ass, by a cock picking up corn, by the axe, by the sive, by the flying of birds, by the stars, by the entrails of beasts, by lots, by dreams, and by infinite devices, has man sought to look into futurity, and to comprehend the ways of Providence. The very general prevalence of the notion of divination is fully set forth in Cicero's treatises on the Nature of the Gods, and on Divination. According to the Socratic method, he gives the argument on both sides; and though disclaiming to pronounce any judgment of his own, he evidently takes ground against all divination by dreams, or by any other way. He regards it as a superstition which has extended itself through all nations, oppressed the intellectual energies of almost all men, and betrayed them into endless imbecilities. He complains that certain philosophers have taken dreams under their special patronage; and they are not philosophers of the lowest order, but men of vast learning and of remarkable penetration; who are looked upon as absolute, and perfect masters of all sciences. In this respect, as well as others, Cicero seems to have raised himself far above the prejudices of his age; and in divorcing true religion from all connection with superstition, seems to have anticipated the period when Christianity will have done its complete work with the minds and consciences of men.

No art has so frequently called to its aid the influences of supernatural powers, as the medical art. Witches and impostors have in all ages been either the rivals or the colaborers of the physician. It is here that mysticism and superstition have worked results without a parallel in the history of man. The doctor has had the ministrations of both good and evil spirits, and commanded their services at his pleasure. The veil of secrecy which he has thrown around himself, has only served to increase the faith of his

patients, and to give efficiency to his remedies. Pliny has truly said, "*Minus credunt quæ ad salutem pertinent, si intelligunt.*" In the eclipses of the sun and moon, in the appearance of comets, in the conjunction and opposition of stars, in devils, in angels, in the mystic properties of various stones and herbs, in amulets or external charms, in the royal touch, in the ashes of a witch, or of the thigh bone of a hanged man, in sympathetic powders and magic nostrums; in a word, in everything which can appeal to the fears and superstitions of man, has the doctor found a way of accounting for the appearance of disease and the means of treating it. Nor have dreams escaped him. Bad dreams were believed to be produced by evil spirits, and the physician found a specific to prevent their visitations. The precious stones were inhabited by good spirits, and, though first worn only as amulets, they were in time taken internally, to drive away, among other things, bad spirits. The coral especially, it was thought, would protect against the influence of the "evil eyes," and drive away devils and evil spirits, and troublesome dreams. The bells which even now are seen attached to amulets worn around the necks of children, were designed originally, not to amuse the child by their jingling, but by their noise to frighten away the spirits. Let not our readers laugh at the ignorance and credulity of our ancestors, and believe that none could be thus duped but the ignorant, the old women, and children. In Smith's Thucydides we read that Pericles, in his last moments, when dying of the plague which almost depopulated Athens, showed to a friend who was visiting him a chain which the women had hung about his neck. Such faith, as we have seen from Cicero, was universal among the ancients. Socrates, Plato, and Aurelius, and scores of the most enlightened men of antiquity, have recorded their belief. Let us give way to the former for a moment. "Some men there be that have certain members and parts of their bodies naturally working strange and miraculous effects. As, for instance, king Pyrrhus, whose great toe of his right foot was good for those who had a large, swollen, or indurated spleen, if he but touched the parts diseased with that toe; and when the rest of his body was burned, the fire had no power over that toe." Aristides was the dupe of the Asclepiades for ten years, and believed that all the severity exercised towards him was by the express order of Esculapius, and that he conversed with him in his dreams, and beheld him in nocturnal visions. According to Homer, the blood gushing from Ulysses was arrested by a charm; prayers and magic have extracted foreign bodies from wounds; and Cato the Censor has given us a charm for reducing a dislocated limb. According to Burton, who was plainly full of faith, the devil has always been regarded as an expert physician, and certain cures cannot be effected except by the aid of cabalistic words, spells, and spiritual physic. We know the world has still

its superstition, and that it may be said yet to linger, in some of its ancient forms, around the bedside of the sick and dying. To pass by Philippus Theophrastus Bombastus Paracelsus de Hohenheim, better known as Paracelsus, the great prince of modern empirics, we find Lord Bacon indulging superstition in physic, while condemning it in general; Boyle curing the dysentery by an electuary made of the ashes of the thigh bone of a hung man; Johnson carried by his parents to receive the royal touch for the scrofula; and thousands and tens of thousands at this very time plunging into all the absurdities of homœopathy; an art of curing founded on *resemblances*, and inculcating the doctrine that "every disease is curable by such medicines as would produce in a healthy person symptoms similar to those which characterize the given disease," and that it is impossible to attenuate the remedy to such a degree that it will not produce a decided amelioration in the disease; and that the *strength* of a mixture is in proportion to its dilution, or, in other words, to its *weakness*. But we are done. When will Christianity exert its rightful influence over the minds of men! Is the world always to have a sort of New Platonism, to exhibit a pagan copy of Christianity, with its hierophant and philosopher, and to perpetuate its absurd notions of divination and magic, illumination and charm! There is a light from heaven with which man may descend into a cave far deeper and darker than the cave of Trophonius, and see and hear the strange things which it contains, without the feeling of unutterable terror and dismay. It is the light of Christian revelation, whose piercing rays penetrate the blackest darkness; it is no demoniac power, but the Spirit of God whispering peace and comfort: "commanding resignation to Providence, cutting off the arts of divination by the root, teaching men to be wise with sobriety, restraining their desires of knowledge within due bounds, and saving them from the fears of future evils."

We have thus laid before the reader, some of our notions and conclusions on the subject of dreams. We have ventured to differ from some of the commonly received opinions, and to offer some suggestions. Let them pass for what they are worth. In our discussion it may appear that we have taken a somewhat wider range than the subject demanded; or introduced topics which do not properly belong to it. We think not, or we would have done otherwise. But, if we shall stand convicted of the charge, we will answer with the preacher, that we sometimes prefer the expository lecture to the regular sermon, on the ground that, "when we are persecuted in one text, we can flee unto another."

We like the good old fashion of "attempting to improve the occasion;" and we must ask to make some concluding observations and reflections. These result naturally, we conceive, from the discussion as it has been conducted. Bacon, in one of his

essays, speaks with great contempt of the whole subject of dreams and astrology. The great philosopher goes, perhaps, a little too far in reference to the former. His "judgment is, that they ought all to be despised." Dr. Johnson attached some importance to them. Mrs. Piozzi records that on a certain occasion he said to her, "Make your boy tell you his dreams; the first corruption that entered my heart, was communicated in a dream." The facts which we have already given, show that dreams are not always to be despised. We are not prepared to go to the extent of Tertullian and others, and insist, that there is a *special purpose* of the Deity *in every dream*, but we cannot believe that so universal a fact is always without *any purpose whatever*. Stewart, one of the most learned, the most acute, and most successful inquirers into the nature of the human mind, believes that the phenomena of dreaming form an article not altogether useless in the natural history of man, inasmuch as they contribute to attract our attention to those intellectual powers, from which it is so apt to be withdrawn by that external world, which affords the first, and, for the common purposes of life, the most interesting field for their exercise. He adds, in confirmation, a most striking and beautiful fact derived from his own personal experience. He assures us that the speculations concerning the human mind which he ventured to present to the public, all took their rise from a contemplation of the phenomena of dreaming. Sleep and dreaming are states of the soul certainly differing from that which it exhibits when awake; and assuredly it will not be questioned that we can learn more of the soul by studying it in the various states in which it presents itself, than by restricting ourselves to a single view; and that we can acquire a more thorough knowledge of the faculties from sleep, than we can without it. And is there nothing in a dream? It comes like a messenger of peace to the troubled bosom of the poor wanderer, and brings to him tidings of joy from his home, his kindred, and his country; it calms the perturbations of the prisoner in his cell, and restores him to light and liberty; and it introduces the good man into the very heaven of heavens, where the celestial glory bursts upon him, and where he mingles his voice with the notes of archangels, and of the just made perfect, in praise to the Most High. But this is not all. Where on earth can be found a wretch so miserable, as the guilty man haunted by his dreams? No strivings, no efforts, no expedients, can protect him against the appalling horrors which night by night stand like cursed spectres before his affrighted vision. Sleep, which brings peace and quiet to others, only arouses his brain to maddened action, and summons to his bedside furies ten times more numerous and dreadful, than those which followed the footsteps of Orestes. During the absorbing pursuits of active life, there may be a momentary forgetfulness; but memory, more

faithful in the dream than in the waking hour, brings up the horrid reality, and conscience, now clothed with an almost supernatural sensibility, whispers to him of a judgment to come, and of an eternity of punishment. This is no picture of fancy. God, in his Providence, has ordered that the sleep of the wicked shall not be sweet and refreshing. Let one read of the sleepless nights, the tumultuous dreams, the horrid phantasms of Caligula, as sketched by Suetonius, and then answer the question, whether there is anything in a dream.

In the discussion of the subject, we seem to have taken it for granted, that the soul is inactive in profound sleep. This may be so; but it cannot be proved. It is conceded, that in dreams the soul is engaged in thought, and yet this is sleep. The fact that when awake it is not conscious of thought during sleep, is not proof conclusive that there has been no thought. Every one knows that we dream constantly without remembering it; and that at best our dreams are generally recollected only in parts. Our remembrance exists in every degree: at one time it is of a mere shadow of a dream; of an outline so dim, that we doubt whether we had a dream or not. Again, our dreams come to us in our waking hours, with all the vividness of realities. Between these extremes, we have every variety of impression. For days, perhaps, we are wholly unconscious of a dream on a particular night, when it is suddenly suggested by some casual circumstance, or new train of thought, which brings it fully before us. These are admitted facts; and if they will not authorize the opinion that the soul is always thinking in sleep, do they not, at least, leave the question in doubt? We take Mr. Locke upon his own ground, and we assert that there is every reason to believe that "a sleeping man thinks without the waking man knowing it;" "that men dream without remembering it." According to Mr. Locke, every dream is remembered; a proposition contradicted by the experience of every mind, and not sustained by the common, well-attested facts. We think him in error; and yet, we have a hope that still the personal identity may be preserved; that there is an escape from the conclusion, that "the sleeping and waking man are two persons."

Many great and good men have found in the dream an argument for the excellency and immortality of the soul. Addison remarks, that dreams look like the relaxations and amusements of the soul, when she is disencumbered of her machine. She seems gathered within herself, and recovers that spring which is broke and weakened, when she operates more in concert with the body. This is a very ancient notion. Not to go further back into antiquity, we read in the Cyropædia of Zenophon, that Cyrus the Elder declared that the souls of persons asleep, especially manifest their divine nature; that, when disengaged and free, they foresee many future events; and from this he concludes the higher

state in which they shall be, when they are altogether released from the fetters of the body.

Does the soul ever dream of being out of the body, or experience a consciousness of being out of it? An author of eminence in our own time, says that it has been asserted by several very honest, but probably incompetent persons, that they have experienced it. Now, we believe it to be entirely true. Two of our own family, and both in the maturity of life, have dreamed of being dead, and having their bodies laid out, according to the customs of the country. Experiencing a consciousness of a distinct and separate existence of their souls, they have, with other spectators, visited the room, and most carefully viewed the corpse, and received the liveliest impressions of its appearance. We think that such dreams are not very uncommon. We give, in illustration, the case of Dr. Adam Clarke, reported by Dr. Lettsom, which, though not what is commonly known as a dream, is equally pertinent to the point under discussion. This good and eminent man was once, to all appearance, drowned; and during the period of his apparent unconsciousness, he felt a new kind of life. We give his own words: "All my views and ideas seemed instantly and entirely changed; and I had sensations of the most perfect felicity that it is possible, independently of rapture, for the human mind to feel. I had no pain from the moment I was submerged; a kind of green colour became visible to me; a multitude of objects were seen, not one of which, however, bore the least analogy to anything I had ever beheld before." With a conscience at ease, there are moments when the soul would seem to be out of the body. This is often the case on the verge of dissolution, when the brain is still active, but the will is without power over the muscles. It is truly then a life of the soul. Absorbed in the contemplation of its own nature, and conscious of being on the confines of another world, having its noble faculties stimulated to a higher effort, by the fuller display of the goodness and greatness of God, it may be said already to have left this lower dwellingplace and to have entered upon the peace and joy of heaven. The gift of prophecy bestowed upon the dying has been noticed from the earliest periods. Homer makes Hector, when dying, speak positively of the speedy death of Achilles, and Patroclus, with equal certainty, had foretold the death of Hector. Nor has it escaped Shakspeare, who makes Hotspur declare,

> "O, I could prophesy,
> But that the earthy and cold hand of death
> Lies on my tongue."

If some of our speculations should seem to be wild, and some of our explanations inconclusive and unsatisfactory, an excuse, we trust, will be found in the difficulties of the subject. There

is but little in what has been written, to guide us in the intricacies of a labyrinth, whose windings require a far greater skill than that which distinguished the immortal Theseus. Though we will never be able to explore all its recesses, yet, with a becoming spirit, we are permitted to penetrate within a certain limit. The further we advance, the more will we be enlightened and made to rejoice. The wonderful phenomena of the human mind, under whatever circumstances they may be revealed, will be contemplated with the eye of a well-regulated reason, and a surely-grounded faith. Intelligence, design will be seen in all. No conceit of fatalism, no dream of superstition, no pretence of astrology, no demoniac interposition, no strange voice from other worlds will have a place. God will be seen alike in his providence, everywhere ruling and controlling without a rival. We can no more comprehend the mysteries of his operations, than we can solve the mysteries of his being. Not only in metaphysics and ethics, but in every department of knowledge, will difficulties meet us at every step. But there is no cause for complaint. These very difficulties stimulate our faculties and add to our happiness, and throw over the earnest inquirer "the mantle of humility and devotion." All is adjusted to the circumstances of man's condition. "There is light enough," says Pascal, "for those whose sincere wish is to see; and darkness enough to confound those of an opposite disposition." If puzzled by the countless mysteries with which we are surrounded, let no unmanly spirit come over us; if dark and terrible visions meet the eye, let us, like Bunyan's pilgrims, turn the perspective glass to the celestial city, where we may see "something like the gate, and also some of the glory of the place."

Of the book whose title is given at the head of this article, we will say a word. "The Philosophy of Sleep" is a good sized duodecimo volume, of nearly four hundred pages. What! says the reader, *four hundred pages on sleep!* Yes, all on the simple idea of sleep, as Locke would have it, with its several modes of Dreaming, Night-mare, Day-mare, Sleep-walking, Sleep-talking, Drowsiness, Protracted Sleep, Trance, Spectral Illusions, &c. The author is a sensible man, a good writer, and has given us an interesting book. We have not the time to notice the work particularly, nor is it necessary to our purpose. The most useful chapter is the last, on the General Management of Sleep. He insists that the chamber should be large and airy, the bed large, and not placed close to the wall, the pillow pretty hard, the covering not too thick and heavy, the atmosphere in the room cool when the person is in health; that we lie between sheets, and not blankets; that all restraints be removed from the body; that the collar of the night-shirt be unbuttoned, and the neckcloth be taken off; that the head be tolerably elevated, especially in plethoric subjects; that the position from the neck downwards be as nearly as possible hori-

zontal: these and other judicious suggestions of our author are well worthy of attention. He urges, also, that the body should be brought into that state which gives the surest chance of dropping speedily to sleep; if too hot or too cold, it must be made comfortable by the appropriate means; and he takes ground against heavy suppers, except in persons who have been long accustomed to them. The life should be sober and regular, and free from all excesses. We are reminded of what Socrates says on the subject, in the Republic of Plato: "When that part of the soul which is capable of intelligence and reason, is subdued and reduced to languour, then that part in which there is a species of ferocity, and uncivilized savageness being excited by immoderate eating and drinking, exults in our sleep, and wantons about unrestrainedly; and therefore all kinds of visions present themselves to it, such as are destitute of all sense or reason, in which we appear to be giving ourselves up to incest and all kinds of bestiality, or to be committing bloody murders and massacres, and all kinds of execrable deeds, with a triumphant defiance of all prudence and decency. But in the case of a man who is accustomed to a sober and regular life, when he commits himself to sleep, then that part of his soul which is the seat of intellect and reason is still active and awake, being replenished with a banquet of virtuous thoughts; and that portion which is nourished by pleasure, is neither destroyed by exhaustion nor swollen by satiety, either of which is accustomed to impair the vigour of the soul, whether nature is deficient in anything, or superabundant, or overstocked; and that third division, also, in which the vehemence of anger is situated, is lulled and restrained; so that, owing to the due regulation of the two more violent portions of the soul, the third, or intellectual part, shines forth conspicuously, and is fresh and active for the admission of dreams; and therefore the visions of sleep which present themselves before it are tranquil and true." The ancient sage is here probably following the Pythagorean division of the soul into three parts, and we have not made this lengthy extract because it presents a just and philosophical analysis, but for some sober truths which it inculcates, and their direct bearing upon the points which we have under discussion.

We will not speak of the thousand and one expedients to procure sleep. Wordsworth embraces some of the most important in one of his sonnets; as, the flock of sheep passing leisurely by; the sound of rain, and bees murmuring; the fall of rivers, winds, and seas; smooth fields, white sheets of water, and pure sky; but, he adds, "I thought of all by turns, and yet I lie sleepless." Who has not wooed sleep by counting a thousand, by repeating verses, and by other expedients! Poets, philosophers, the good and great of earth, have all made their suggestions. For no malady which afflicts poor human nature, have the doctors prescribed more

freely. We insist that, when other remedies fail, the poor victim try the reading of our prosy article. But we would first offer, as the best of all anodynes, a quiet, easy conscience; a habit of self-examination, "of nightly recollection," which is so well enforced in the "Golden Verses of Pythagoras:"

> "Nightly forbear to close thine eyes to rest
> Ere thou hast questioned well thy conscious breast
> What sacred duty thou hast left undone;
> What act committed which thou ought'st to shun;
> And, as fair truth or error marks the deed,
> Let sweet applause or sharp reproach succeed."

What a great privilege is it to say, with the Psalmist, "I will both lay me down in peace, and sleep." Though it is true, that, from hereditary peculiarities of constitution, and other unavoidable causes, sweet and refreshing sleep is denied to some, there can be no doubt that God designed this great blessing for his creatures at large; and that the penalty of an almost constant wakefulness, is due in very many cases, to a too absorbing attention to the cares and business of life, and to the distracting thoughts which, in the gloom and stillness of night, rack the overworked and fevered brain. We have remarked in another place, that nature has fixed a time for sleep; that we are, in this respect as in others, under the influence of a periodic law. But man is prone to war against the very conditions in which his best interests and safety can alone be found. Nothing is more prejudicial to health, than a bad habit of sleeping; and, like most bad habits, it may be easily formed. In the remarkable correspondence between Sir Isaac Newton and Mr. Locke—a correspondence alike honourable to both—the following passage occurs in the last note of Sir Isaac: "The last winter, by sleeping too often by my fire, I got an ill habit of sleeping, and a distemper which this summer has been epidemical, put me further out of order; so that, when I wrote to you, I had not slept an hour a night for a fortnight together; and for five days together not a wink. I remember I wrote to you, but what I said of your book I know not." We are commanded to exercise the powers both of body and mind, and health is impossible without it; but God has prescribed limits beyond which we cannot go. Let the business man in the too eager pursuit after wealth, and the ambitious student who toils to a late hour at his books, take warning. The thoughts of our waking hours may obtrude upon the periods for repose, and no force of will can drive them out. The bed becomes literally a bed of torture. For such there is no sleep, no rest.

> "Their slumbers—if they slumber—are not sleep,
> But a continuance of enduring thought."

Art. VI.—MIRACLES.

Notes on the Miracles of Our Lord. By Richard Chenevix Trench, M. A., Vicar of Itchen Stoke, Hants; Professor of Divinity, King's College, London; Examining Chaplain to the Lord Bishop of Oxford; and late Hulsean Lecturer. Second ed. London: John W. Parker, West Strand. 1847. Pp. 467.

On Miracles. By Ralph Wardlaw, D. D. "*What sign showest thou, then, that we may see, and believe thee? What dost thou work?*"—The Jews to Jesus. New York: Robert Carter & Brothers, No. 285 Broadway. 1853. Pp. 295.

An Inquiry into the Proofs, Nature, and Extent of Inspiration, and into the Authority of Scripture. By the Rev. Samuel Hinds, M. A., of Queen's College, and Vice-Principal of St. Alban's Hall, Oxford. Oxford: Printed by W. Baxter, for B. Fellowes, Ludgate Street, London; and J. Parker, Oxford. 1831.

All the departures from the ancient faith concerning the authority of the Scriptures, which have distinguished modern speculation, may be traced directly, whatever may be said of the perverseness of the heart as the ultimate cause, to an insuperable repugnance to the admission of miracles. The supernatural has been the stone of stumbling and the rock of offence. The antipathy to it has given rise to open infidelity, on the one hand, and to the various types of criticism, on the other, which, in consequence of their agreement in rejecting everything that transcends the ordinary agencies of nature, have been classed under the common name of Rationalism. If the immediate intervention of God, either in the world of matter or of mind, is assumed to be intrinsically incredible, nothing is left but to discard the records which assert and pretend to give examples of it, as impudent impostures, or to seek, by tortuous interpretation, to reconcile accounts confessedly false with the honesty of the historian, and, what would seem to be still more difficult, with the essential divinity of the religion. The English Deists, in the seventeenth and eighteenth centuries, took the former course, and denounced the Bible in unmeasured terms of vituperation and abuse. They saw no middle ground between the rejection of the supernatural and the rejection of Christianity. They could not comprehend how that could, in any sense, be treated as divine which was made up of a tissue of fables, or how they could be regarded as honest men, who had palmed the grossest extravagances upon the world, as sober, historical realities. Woolston may, perhaps, be deemed an exception. His letters upon the miracles of our Saviour are remarkable for having anticipated the method, in some degree at least, which has been carried out with such per-

verseness of learning and ingenuity by Strauss and Bauer. "His whole reasoning," we use the words of Strauss himself, "turns upon the alternative, either to retain the historical reality of the miracles narrated in the Bible, and thus to sacrifice the divine character of the narratives, and reduce the miracles to mere artifices, miserable juggleries, or common-place deceptions; or, in order to hold fast the divine character of these narratives, to reject them entirely as details of actual occurrences, and regard them as historical representations of certain spiritual truths." His own opinion is nowhere articulately expressed, but the presumption is, from the general tenour and spirit of his book, that he was really a Deist, who resorted to allegory as a convenient cover for his malignity; and to the spiritual sense, as a protection from the unspiritual weapons with which he was likely to be assailed. He was well aware, if his dilemma could be fairly and conclusively made out, which horn of it the sturdy common sense of Englishmen would adopt. A religion shrouded in figures could be no religion for them. But, with this exception, if exception it can be called, the issue in England was, No miracles, no Christianity; the Bible must be accepted as it is, as out and out divine, or wholly and absolutely rejected; it was, the ancient faith or open and avowed infidelity.

The case was different in Germany. The publication of the Wolfenbüttel Fragments—an anonymous production of Reimar, which pursued precisely the same line of argument with the English Deists—gave rise to a class of theologians, who have undertaken to retain Christianity at the expense of the historical accuracy of its records. They agree with the Deists in repudiating all that is supernatural, but they cannot agree with them in denouncing prophets and apostles as impostors; or in divesting the biblical narratives of all moral and spiritual significance. The modes in which they save the credit of the sacred writers, and the divine import of the sacred history, vary with the reigning philosophy, and constitute the different schools into which the class of theologians, commonly known as Rationalists, may be divided. The first of these schools, that founded by Eichhorn, and perfected by Paulus, accepted the authenticity of the Scriptures, as a narrative of facts, by reducing the miraculous to the dimensions of the natural. They were only ordinary events, produced by ordinary agency, which had assumed an extraordinary character in the narrative, either from the omission of circumstances necessary to explain them, or from the style in which the opinions and prejudices of the age led the spectators to describe them. Our Saviour neither wrought nor pretended to miracles; and the evangelists properly interpreted, that is, interpreted in the light and spirit of their own times, record nothing of the kind. All was natural. Jesus was a wise and a good man; and what we are accustomed

to consider as his wonders, were "works of benevolence and friendship; sometimes of medical skill; sometimes also the results of accident and good fortune." In this way the history was saved; but what became of the divine? That also was reduced to very small proportions. Jesus introduced a pure and spiritual religion; enforced it by the example of a spotless life, and confirmed it by the glory of a martyr's death. He was called of God, in the sense that providential circumstances favoured the development of his character; and his natural gifts qualified him to become a great moral teacher.

The thorough-going attempt to reduce the supernatural in the New Testament to the dimensions of the natural, to make the miracles nothing but the language in which the age signalized ordinary phenomena, is one of the most curious chapters in the history of criticism. It contained the seeds of failure in itself; "and now," says Trench, "even in the land of its birth it has entirely perished."

The approximation to a deeper and more earnest faith was indicated by the systematic effort of Schleiermacher to reconcile religion to nature without stripping it of all divine power. The supernatural, in common with the Deists and the preceding school, he discarded. The low sense of the natural which Paulus contended for, he equally repudiated. He wanted more of God; a religion that should really answer to the description of God manifest in the flesh. The anxiety to escape from anything like a real miracle; and the longing for a system of spiritual life and power; the revulsion alike against a material naturalism and a palpable supernaturalism, is the key to the elaborate christology of Schleiermacher. The conception which he had of Christ, as the archetype of perfect humanity, in whom the consciousness of God existed in absolute strength, led him to attribute to the Saviour an intimacy of communion with nature, and an access to her secrets, which no other man possessed. He was familiar with her mighty energies, and he could lay his hand upon the springs of her power, and produce effects which, to those immersed in sense, should appear to be supernatural. Still all that he did was to obey her laws. He never rose above her. A profounder knowledge invested him with a deeper power, but it was the same in kind with the power of other men. This, of course, was to deny the miracles without denying the phenomena of the New Testament.

Next comes a school which discards the entire histories of the New Testament, as authentic narratives of facts, and makes them the offspring of the love, admiration, and glory with which the followers of Jesus adorned their recollections of their master. They were unconscious allegories, in which their imaginations, enriched and expanded by the prejudices, and expectations, and habits of thought engendered by the Old Testament, threw their

remembrances of their Lord; "the halo of glory with which the infant church, gradually and without any purpose of deceit, clothed its founder and head. His mighty personality, of which it was livingly conscious, caused it ever to surround him with new attributes of glory. All which men had ever craved and longed for, deliverance from physical evil, dominion over the crushing powers of nature, victory over death itself; all which had ever, in a lesser measure, been attributed to any, they lent in larger abundance, in unrestrained fulness, to him whom they felt greater than all. The system may be most fitly characterized," and we cordially concur in the caustic criticism of Trench, "as the church making its Christ, and not Christ his church."

On this scheme the history, both natural and supernatural, is fairly abandoned. There was a basis of facts in the life of Jesus; but what those facts really were, we have no means of determining. He lived and died, and this is about all we can know with any certainty. What, then, becomes of the divine? Is not that abandoned too? By no means, says Strauss. The history is altogether unessential; the absolute contents of Christianity are quite independent of it. The stories of the New Testament are only the drapery in which a grand idea is represented; and that idea may be seized and retained without clinging to the dress in which it was first presented. We may give up the Bible without surrendering aught that is divine in Christianity itself. Here that criticism, which ventures to reject the supernatural and yet call itself Christian, seems to have reached its culminating point. Extravagance could go no farther.

Though the term Rationalist, as a distinctive title, is, for the most part, restricted to the school of Eichhorn and Paulus, we have not hesitated to extend it to them all, in consequence of their agreement in radical and fundamental principles. They all equally reject the supernatural; they all equally admit no other standard of truth but our own reason; they all equally repudiate an objective, external, divine revelation. The divine with them is only the true, and the true is that which authenticates itself to our own souls. We believe because we see or feel, and not because the mouth of the Lord has spoken. They all equally make man the measure of his religion. To indicate the differences among themselves, the epithets sensual and spiritual might be chosen; which seem to be appropriate to the different systems of philosophy they had respectively embraced.

The pretensions to a deeper spiritualism and a profounder life, have given something of currency to the peculiar system of Schleiermacher, have detracted from the historic form in which the christology of the ancient faith is embodied, and served to increase, if not to engender, a secret prejudice on the part of earnest inquirers, against the miraculous features of

Christianity. Men have been willing to accept a religion which promises to satisfy the longings of their nature, without demanding an extraordinary faith, which meets their wants without repressing the freedom of speculation.

But the point on which the church has always insisted, and which she makes essential to the existence of a true faith, is, that the scheme of Christianity involves the direct intervention of God; and that the Scriptures, which record that scheme, are an authoritative external testimony from him. She is not content with a barren compliment to the honesty and integrity of the writers; nor to the still more barren admission that something of truth, more or less elevated, according to the philosophy of the critic, can be extracted from their pages. She asserts their authority to speak in the name of God; and she commends their doctrines, not because they commend themselves by intrinsic probability or ideal excellence, but because they are the word of the Lord. The fundamental postulate of the Rationalist of every type precludes the conception of *such* a revelation. A religion of *authority* he as indignantly rejects as the most unblushing scoffer. Such a revelation, being essentially supernatural, stands or falls with the miracle. Let those, therefore, who feel themselves tempted to join in the cry against miracles, and to depreciate them as carnal and earthly; who would insist upon the divine truths of Christianity to the exclusion or neglect of its equally divine credentials, consider well what they are doing. They are giving currency to a principle which, if legitimately carried out, would rob them of those very truths in which they are disposed to rest. There is not a distinctive doctrine of the gospel, which could be known to be true, independently of just such a revelation as implies the reality of miracles. There are no lines of ratiocination, no measures of experience, no range of intuition, no ideas awakened in the soul, which could authenticate to us the ends and purposes on the part of God, involved in that series of stupendous facts unfolded in the biblical histories. What elevation of consciousness, or what intensity of moral and spiritual enthusiasm could ever ascertain to us the appointment of a great Mediator, on the part of heaven's high chancery, to bring in an everlasting righteousness, and to open the kingdom of heaven to all believers? The sensible phenomena connected with the life and death of Jesus may, indeed, be apprehended; but their significance in the economy of God it transcends the sphere of our faculties to discover. They are the counsels of His will, which none can penetrate but His own eternal Spirit; and unless He has revealed them, our speculations about them are little better than a sick man's dreams. They must be known by a divine testimony, or they cannot be known at all. The question, then, of miracles runs into the question concerning those very doctrines for the sake of which we affect to slight them.

It is impossible to abandon the miracle, and cling to any other Christianity but that which is enkindled in our own souls from the sparks of our own reason. The consciousness of the individual, or the consciousness of the Christian community, awakened and propagated by sympathy, must be the sole criterion of truth. There is no alternative; man must make his religion, if God cannot give it to him.

As the question of an external, authoritative revelation depends upon the question of the truth or possibility of miracles, we have thought proper to contribute our mite to the interests of religion, and (may we not add?) of a sound philosophy, by a calm and candid discussion of the whole subject. We are aware that in introducing topics of this sort into a secular Review, we may offend the prejudices of some of our readers, who would have religion as completely divorced from letters as from politics. But such a separation is as hopelessly impossible, as it is undesirable, if it were possible. Religion and philosophy touch at every point; and we agree with Suarez, that no man can be an accomplished theologian who is not, at the same time, an accomplished metaphysician; and that no man can be an accomplished metaphysician without imbibing principles which shall lead him to religion. Faith and reason are distinguished, but not opposed; and though a superficial culture may have the effect which Strauss ascribes to it, of alienating the mind from the sacred records; yet a deeper and sounder philosophy will correct the aberration. We have, too, the example of the best English Reviews, which occupy no small space with those aspects of religion in which it touches directly upon science and letters. We shall not scruple to imitate them in this respect, as well as in devoting our pages to the social and political interests of man. We shall know nothing of sects or parties, but those broad questions which mere sectaries and partizans cannot comprehend, but which pertain to the statesman and scholar are exactly the topics which ought to find a place in a journal like this. We shall feel that we have rendered an essential service to society, if we can succeed, in any measure, in showing that the prejudice against the supernatural, which operates unfavourably on the minds of many, in averting their attention from divine revelation, is without any just foundation. We hope that religion can be reconciled with science upon a safer and easier plan than the sacrifice of either.

The works named at the head of our article cover the whole ground which we propose to occupy. We shall pursue the method adopted by Dr. Wardlaw, and discuss, first, the nature; then the apologetic worth; and finally, the credibility of miracles.

I. What, then, is a miracle? It is obvious that the definition should contemplate it only as a phenomenon, and include nothing but the difference which distinguishes it from every other species

of events. There should be no reference to the cause that produces it; that must be an inference from the nature of the effect. Those who make, as Mill does in his Logic, the belief of God's existence essential to the credibility of a miracle, virtually deny that the miracle can be employed as a proof of His being. But there is evidently no reason in the nature of things why the argument here cannot proceed from the effect to the cause, as in the ordinary changes of nature. The miracle presupposes God, and so does the world. But the miracle, as a phenomenon, may be apprehended even by the Atheist. It is an event, and an event of a peculiar kind, and God comes in, when the inquiry is made for the cause. Hence Cudworth and Barrow, as well as the Fathers and Schoolmen, do not hesitate to appeal to miracles as an argument for the divine existence. Considered as a phenomenon, in what does the peculiarity of the miracle consist? Trench does not give a formal definition, and we find it difficult to determine precisely what his notion was. He explains the terms by which miracles are distinguished in Scripture, but these terms express only the effects upon our own minds, the purposes for which and the power by which they are wrought, and the operations themselves—the effect, the end, the cause—but they do not single out that in the phenomenon by which it becomes a wonder, a sign, a power, or a work. In his comparison of miracles and nature, we have either failed to understand him or he contradicts himself. He asserts, first, that the agency of God is as immediate in the ordinary occurrences of nature, as in the production of miracles. The will of God is the only power which he recognizes anywhere, and to say "that there is more of the will of God in a miracle than in any other work of His, is insufficient."—P. 10. And yet, in less than a page, he asserts: "An extraordinary divine causality belongs, then, to the essence of the miracle; more than that ordinary, which we acknowledge in everything; powers of God, other than those which have always been working; such, indeed, as most seldom or never have been working until now. The unresting activity of God, which at other times hides and conceals itself behind the veil of what we term natural laws, does in the miracle unveil itself; it steps out from its concealment, and the hand which works is laid bare."—P. 12. If God immediately produces all events, what can be meant by extraordinary divine causality? And if the will of God is the sole energy in nature, what are "the powers of God other than those which have been always working?" Has the will of God been seldom or never exerted? If the hand of God was directly in every event, how has it been concealed behind natural laws? There is certainly a confusion here. The two sets of statements must have been written under the influence of different feelings. His anxiety to escape from a dead, mechanical view of nature, and from epicurean conceptions of the indolence of God, may account for his

denial of all secondary agencies; the palpable features of the miracle forced upon him the admissions of these same agencies, as a standard by which it was to be tried.

The scriptural term which gives us the nearest insight into the real nature of the miracle, is precisely the one of which Dr. Trench speaks most slightingly—the word *wonder*.* It is true that every wonder is not a miracle, but every miracle is a wonder. The cause of wonder is the unexpectedness of an event; and the specific difference of the miracle is that it contradicts that course of nature which we expected to find uniform. It is an event either above or opposed to secondary causes. Leave out the notion of these secondary causes, and there can be no miracle. All is God. Admit a nature, apart and distinct from God, and there is scope for an extraordinary power. The doctrine of nature, as consisting of a series of agencies and powers, of substances possessed of active properties in their relations to each other, by no means introduces a dead, mechanical view of the universe. God has not left the world, as a watchmaker leaves his clock, after he has wound it up, to pursue its own course independently of any interference from Him. He is present in every part of His dominions; He pervades the powers which he has imparted to created substances by His own ceaseless energy. He sustains their efficiency, and He regulates all the adjustments upon which their activity depends. He is the life of nature's life. In Him we live, and move, and have our being. But still, in dependence upon His sustaining care and the concurrence of His pervading energy, nature has powers, and consists of causes which, in the same circumstances, always produce the same effects. To the following remarks of Dr. Wardlaw, we cordially assent:

"I have already, at the very outset, given a definition of them in other terms—as *works, involving a temporary suspension of the known laws of nature, or a deviation from the established constitution and fixed order of the universe;* or, perhaps more correctly, of that department of the universe which constitutes *our own system*, whose established order and laws we are capable, to the full extent requisite for the purpose, of accurately ascertaining:—works, therefore, which can be effected by no power short of that which gave the universe its being, and its constitution and laws. In this definition, let it be observed, I have called a miracle a suspension of the *known* laws of nature. It is necessary to mark this. Effects, it is abundantly obvious, might be produced, such as, to those who witnessed them, might appear, and might be believed, miraculous, while the persons by whom they are performed are well aware, from their superior acquaintance with the laws, and powers, and phenomena of nature, that the appear-

* Nomen miraculi ab admiratione sumitur. Thomas Aquinas, Summa 1, Quest. 105, Art. 7.

ance is fallacious, and the belief unfounded. The persons before whom they are performed may be utterly unable to account for them by any natural laws or powers *known to them*:—while, in point of fact, in place of their being suspensions of any law or laws of nature whatsoever, they are actually the product of their operation; so that, in the circumstances, the real miracle would have lain, not in their production, but in their *non*-production. *That* would have been the true deviation from the settled constitution of nature. In such a case, the miracle is a miracle *only to ignorance*; that is, it is *no* miracle. A little further development of the secrets of nature annihilates the seemingly miraculous, and only reads to the previously uninformed mind a new lesson of nature's uniformity. It becomes, therefore, an indispensable requisite to a genuine miracle, that it be wrought both *on* materials, and *by* materials, of which the properties are well and familiarly known; respecting which, that is, the common course of nature is fully understood."—P. 34–35.

Dr. Wardlaw subsequently criticises, and, we think, with justice, the distinctions and evasions by which Trench undertakes to rescue the miracle from being a violation of nature's order: to this point we shall afterwards refer. We cannot forbear to quote a portion of his remarks:

"The truth is, we must understand the term *nature*, in the sense usually attached to it, as relating to the constitution and laws of the physical system of our own globe. It is true, that, in consequence of sin, there have been 'jarrings and disturbances' of its 'primitive order.' But it does not follow from that, that there are no natural principles and laws in fixed and constant operation. And when an event occurs for which these natural principles and laws make no provision—for which they can in no way account—which is quite aside from, and at variance with, their ordinary uniform operations—it does not to me seem very material, whether we speak of it as beyond nature, or above nature, or beside nature, or against nature, or contrary to nature—whether as a suspension, an interruption, a contravention, or a violation of nature's laws; provided we are understanding 'nature and nature's laws' as having reference to the physical economy of our own system. When, in illustration of his position that a miracle is not at all 'the infraction of a law, but only a lower law neutralized and put out of working by a superior,' Mr. Trench says, 'Continually we behold, in the world around us, lower laws held in restraint by higher, mechanic by dynamic, chemical by vital, physical by moral; yet we say not, when the lower thus gives place in favour of the higher, that there was any violation of law, that anything contrary to nature came to pass; rather we acknowledge the law of a greater freedom swallowing up the law of a lesser;' he seems to forget that this 'holding in restraint of one law by the operation of another,' is itself *one of the very laws* whose working 'we behold in the world around us;' and that it comes, therefore, among the laws of nature as ordinarily understood, that is, as having relation to this said 'world around us,' to the physical order of our system. But it is manifestly unfair, in interpreting *nature*, to quit our own system, to mount to a loftier sphere, to take in a wider amplitude,

to embrace the entire range of being; and then, because a thing, though a manifest contravention of the laws of 'the world around us'—of 'the nature which we know'—may not be out of harmony with nature when considered as embracing the boundless universe, and even the attributes of its Maker, thus bringing omnipotence itself into the range of 'natural causes,' to deny the propriety of pronouncing anything whatever to be *against nature*. For this involves the fallacy of taking the same term in two senses; and, because the thing in question may not be inconsistent with it in the one, concluding that it cannot be inconsistent with it in the other!"—P. 40–41.

II. Having settled that the essence of the miracle consists in the contranatural, or the supernatural, we are now prepared to investigate its apologetic worth. The question to be answered is briefly this—we quote the words of Mr. Trench—"Is the miracle to command, absolutely and without further question, the obedience of those in whose sight it is done, or to whom it comes as an adequately attested fact, so that the doer and the doctrine, without any more debate, shall be accepted, as from God?" In other words, is the miracle, in itself, from its own intrinsic character, a sufficient credential of divine inspiration, or a divine commission?

Trench, in company with the Jewish and pagan enemies of Christianity, and a large body of both Catholic and Protestant theologians, answers in the negative. Dr. Wardlaw answers in the affirmative; and we think that Dr. Wardlaw is right. The assumption on which the negative proceeds is, that a real miracle may be wrought by beings inferior to God. The Jews ascribed those of our Saviour to Beelzebub, the gentiles to magic, and the Scriptures themselves warn us against the lying wonders of the man of sin. The miracle, consequently, establishes, in the first instance, only the certainty of a superhuman origin, without determining anything as to its character. It may be heaven or it may be hell. To complete the proof, the nature of the doctrine must be considered. If that is approved by the conscience, or commends itself to the reason, it settles the question as to the real source of the miracle—and the miracle, thus authenticated as from God, confirms in turn the divine origin of the doctrine. We acquit this reasoning of the charge which has often been brought against it of arguing in a circle. When it is said that the doctrine proves the miracle, and the miracle the doctrine, it is obvious, as Warburton has judiciously remarked, that "the term, doctrine, in the first proposition, is used to signify *a doctrine agreeable to the truth of things, and demonstrated to be so by natural light*. In the second proposition, the term, doctrine, is used to signify *a doctrine immediately, and, in an extraordinary manner*, revealed by God. So that these different significations, in the declared use of the word, doctrine, in the two propositions, sets the whole reasoning free from that vicious circle within which our

philosophic conjurers would confine it. In this there is no fruitless return of an unprogressive argument, but a regular procession of two distinct and different truths, till the whole reasoning becomes complete. In truth, they afford mutual assistance to one another; yet not by taking back, after the turn has been served, what they had given; but by continuing to hold what each had imparted to the support of the other."* The whole argument may be stated in a single sentence: The goodness of the doctrine proves the divinity of the miracle; the divinity of the miracle proves—not the goodness, that would be the circle—but the divine authority of the doctrine.

But though we admit that this reasoning is valid as to form, we cannot make the same concession in relation to its matter. We cannot bring ourselves to believe that any created being, whether seraph or devil, can work a real miracle. We hold that this is the exclusive prerogative of God. The only power which any creature possesses over nature is the power which results from the knowledge of, and consists in obedience to, her laws. No finite being can make or unmake a single substance, nor impart to matter or to mind a single original property. Nature is what God made it; her laws what God appointed, and no orders of finite intelligence, however exalted, can ever rise above nature—for they are all parts of it—nor accomplish a single result independently of the properties and laws which God has ordained. They, like man, can only conquer by obeying. They may, through superior knowledge, effect combinations and invent machinery, which, to the ignorant and uninstructed, may produce effects that shall appear to transcend the capabilities of a creature, but they can never rise above, nor dispense with the laws they have mastered. They may reach the *mirabile*, but never the *miraculum*.† It was to set this truth in a clear light, that the miracle, from its very essence, transcends the only species of power that we can ascribe to creatures, that we were so earnest in fixing the definition of it, as something above or contradictory to nature. The power which works a miracle is evidently creative—the same which first gave to the

* Divine Legation, book ix., chap. 5.

† The distinction between finite power and that by which a real miracle is wrought, and between real and relative miracles, is clearly stated by Aquinas, Summa 1, Quest. 110, Art. 4: "Miraculum proprie dicitur, cum aliquid sit præter ordinem naturæ. Sed non sufficit ad rationem miraculi; si aliquid fiat præter ordinem naturæ alicujis particularis: quia sic cum aliquis projicit lapidem sursum, miraculum faceret, cum hoc sit præter ordinem naturæ lapidis. Ex hoc ergo aliquid dicitur esse miraculum quod sit præter ordinem totius naturæ creatæ. Hoc antem non potest facere nisi Deus; quia quicquid facit angelus, vel quæcunque alia creatura propria virtute, hoc sit secundum ordinem naturæ creatæ; et sic non est miraculum.

"Quia non omnis virtus naturæ creatæ est nota nobis, ideo cum aliquid sit præter ordinem naturæ creatæ nobis notæ per virtutem creatam nobis ignotam, est miraculum quoad nos. Sic igitur cum dæmones aliquid faciunt sua virtute naturali, *miracula* dicuntur non simpliciter, sed quoad nos." Compare 2. 2., Quest. 178, Art. 2.

universe its being—to all substances their properties, and to the course of things its laws. It is the power of omnipotence. Hence, wherever there is a real miracle, there is and must be the finger of God. Neither can this power be delegated to a creature. He is, in no case, even the instrument of its exercise. If imparted to him as a *habit*, it would be, like every other faculty, subject to his discretion; if only as a transient virtue, it would still be a part of himself; and we cannot conceive that, even for a moment, infinite power could be resident in the finite.* The prophet or apostle accordingly never performs the miracle. He is only the prophet of the presence of God. He announces what the Lord of nature will do, and not what he himself is about to perform. The case is well put by Dr. Wardlaw:

"Another observation still requires to be made—made, that is, more pointedly, for it has already been alluded to; I mean that in the working of a miracle, there is, in every case, *a direct and immediate interference of Deity*. There is no transference of power from God to the divinely-commissioned messenger. Neither is there any committing of divine omnipotence to his discretion. The former is, in the nature of the thing, impossible. It would be making the creature for the time almighty: and that, (since omnipotence can belong to none but divinity) would be equivalent to making him God. And the latter, were it at all imaginable, would neutralize and nullify the evidence: inasmuch as it would render necessary to its validity a previous assurance of the *impeccability* of the person to whom the trust was committed; that is, an assurance, and an absolute one, of the impossibility of its being ever perverted, by the improper application of the power, to purposes foreign to those of his commission. Omnipotence placed at a creature's discretion, is indeed as real an impossibility in the divine administration, as the endowing of a creature with the attribute itself: for, in truth, if the power remains with God, it would amount to the very same thing as God's subjecting himself to his creature's arbitrary and capricious will. There is, strictly speaking, in any miracle, no agency but that of the divine Being himself. Even to speak of the messenger as his *instrument*, is not correct. All that the messenger does, is, to declare his message: to appeal to God for its truth: and if, at his word, intimating a miracle as about to be performed in proof of it, the miracle actually takes place; there is, on his part, in regard to the performance, neither agency nor instrumentality; unless the mere utterance of words, in imitation of what is about to be done, or in appeal to heaven and petition for its

* The same doctrine is enunciated by Dr. Hinds in the work mentioned at the head of our article, Part II., § 4, p. 120. It is also found, as to its leading thought, in Aquinas, Summa, 2. 2. Quest. 178, Art. 1: "Operatio virtutum (miracles) se extendit ad omnia quæ supernaturaliter fieri possunt; quorum quidem causa est divina omnipotentia, quæ nulli creaturæ communicari potest. Et ideo impossibile est quod principium operandi miracula sit aliqua qualitas habitualiter manens in anima. Sed tamen hoc potest contingere quod sicut mens prophetæ movetur ex inspiratione divina ad aliquid supernaturaliter cognoscendum; ita etiam mens miracula facientis moveatur ad faciendum aliquid ad quod sequitur effectus miraculi, quod Deus sua virtute facit."

being done, may be so called. God himself is the agent, the sole and immediate agent."—P. 52–53.

The miracle, according to this view, requires no extraneous support in authenticating its heavenly origin. It is an immediate manifestation of God. It proclaims His presence from the very nature of the phenomenon. But how does it become a voucher for a doctrine, or the divine commission of a teacher? Neither conclusion is implicitly contained in it, and notable difficulties have been raised as to the possibility of establishing spiritual truths by material facts. We are far from asserting that miracles are so connected in the nature of things with a divine commission, that wherever they are proved to exist, inspiration must be admitted as a necessary inference. There is no logical connection that the human mind is capable of tracing between the supernatural exercise of power and the supernatural communication of knowledge. It is certainly conceivable that one might be able to heal the sick and raise the dead, who could neither predict future contingencies, nor speak with the authority of God. The relation betwixt the miracle and inspiration depends upon the previous announcement of its existence. The man who professes to come from God must appeal to the extraordinary intervention of His power. That appeal makes known to us a connection, by virtue of which the miracle establishes the doctrine, not in its logical consecution, but by the extrinsic testimony of God—establishes the doctrine, not as a truth internally apprehended, but a matter of fact, externally authenticated. It makes the Almighty a witness in the case. The previous appeal is the great canon upon which the applicability of the miracle as a proof, depends; and whenever it is complied with, the performance of the miracle is as a voice from heaven; it is a present God affixing His seal to the claims of His servant. That this is the case can, we think, be conclusively evinced by three considerations:

1. The miracle is an instance of the reality of that which alone creates any presumption against the claims of the prophet—it is an *example* of the supernatural. There is obviously the same antecedent presumption against the pretension to work miracles as against the pretension to inspiration. They are phenomena which belong to the same class, and the man who justifies his pretensions in the one case, removes all proper ground of suspicion in the other. He goes farther; he illustrates an intimacy of connection with the Deity which inspiration supposes, and on account of which it is inherently improbable. This argument is clearly put by Dr. Hinds, in the book which we have named at the head of our article:

"In the case of a person claiming to be commissioned with a message

from God, the only proof which ought to be admitted, is miraculous attestation of some sort. It should be required that, either the person himself should work a miracle, or that a miracle should be so wrought, in connection with his ministry, as to remove all doubt of its reference to him and his message. The miracle, in these cases, is, in fact, a *specimen* of that violation of the ordinary course of nature, which the person inspired is asserting to have taken place, in his appointment and ministry, and corresponds to the exhibition of *specimens* and *experiments*, which we should require of a geologist, mineralogist, or chemist, if he asserted his discovery of any natural phenomena; especially of any at variance with received theories. In this latter case, it would be not only reasonable to require such sensible proof, but it would be unreasonable to admit the assertion without it; without seeing the experiment or specimen ourselves, or satisfying ourselves, on the testimony of credible witnesses, that it had been seen by others. Equally unreasonable would it be, to admit any person's claim to inspiration, or extraordinary communion with God, without the appropriate test, the *earnest* of the Spirit."—P. 9.

2. The miracle, in the next place, is not only a specimen of the supernatural in general, but a specimen of the precise kind of the supernatural which it is adduced to confirm; it is a specimen of inspiration. Here the importance of the doctrine, that God is, in every case, the immediate worker of the miracle—that the power is never delegated to a creature—becomes manifest. He who appeals to the miracle with the certainty of its performance, must know that God will put forth His energy. He is a prophet of the divine purpose, and therefore, really and truly, as to the event in question, inspired. As we are indebted to Dr. Wardlaw for this feature of the argument, we shall permit him to speak for himself:*

"For, having said that every prophecy is a miracle, I have now further to say, that every miracle is a prophecy. *The prophecy is a miracle of knowledge; the miracle is a prophecy of power.* The power by which the miracle is wrought, (as may be noticed more particularly by-and-bye,) being *divine* power, not transferred to the human messenger, but remaining God's, and God's alone, and being by God alone directly put forth for its effectuation, it is plain that a miracle, as far as the messenger is concerned whose commission and whose testimony are to be certified, is simply an intimation of such divine power being about to be put forth by him who alone possesses it, to produce an effect which he alone is able to accomplish. And, to make this still more manifest: if we only suppose that the production of the miraculous effect is not immediate, not to take place at the moment of its intimation, but fixed in the messenger's announcement for a

* The same thought is found in Dr. Hinds, but it had escaped our notice, until we had read the work of Dr. Wardlaw. It is not so clearly stated by Dr. Hinds as by Dr. Wardlaw, and Dr. Hinds does not seem to have appreciated its bearing upon the testimonial character of the miracle. See Hinds, p. 120.

precise time in the somewhat distant future; in that case, when the time came, and the power was put forth, and the miracle wrought accordingly, we should have, you will at once perceive, a *miracle* and a *fulfilled prophecy* in the same event; we should have, in that one event, the evidence of the miracle of knowledge and the miracle of power united."—P. 32–33.

"And there is, in connection with the miracle of power, a miracle of knowledge; consisting in such a secret supernatural communication between the mind of God and the mind of His servant, as imparts to the latter the perfect assurance that God *will*, at the moment, put forth the necessary power; that he certainly *will* strike in with His miraculous attestation."—P. 53.

The miracle, therefore, being an instance, is a proof of inspiration.

3. The third consideration is drawn from the character of God. It is not to be presumed that He will prostitute His power to the purposes of deception and of fraud; and yet, if He works a miracle at the bidding of an impostor, He becomes a party to a double lie. He endorses equally the claim to supernatural power and supernatural knowledge. The whole thing becomes a scene of complicated wickedness. First, a creature with intolerable audacity professes to be in intimate communion with his Maker; then, with a still more intolerable profaneness, takes the name of God in vain, by not only pronouncing it upon his lip, but by demanding a manifestation of the divine presence; and the supposition is that God acquiesces in his blasphemy, succumbs to his behests, and fosters his designs. We cannot conceive of anything more atrocious. The miracle, as we have seen, is, in every case, the immediate operation of divine power. The man is not even the instrument; he is only the prophet of the divine purpose. Now, to say that God's power shall be subject to his arbitrary dictation, is to say that the Almighty becomes a tool to answer the ends of imposture and falsehood; a willing instrument to propagate deceit. If a creature, by habitual virtue, were able to effect a miracle, the case would be different. We might not be competent to say how far God's goodness should interfere to restrain its discretion. But the question is of the immediate agency of God himself; and then it is wicked to think, much less deliberately to propose the problem, how far He can lend himself as a party to a fraud. This consideration seems to us to conclude the controversy. We concur most heartily in the earnest representation of Dr. Wardlaw:

"If a man announces himself, as having been commissioned by God to propound a certain doctrine, or system of doctrines, *as from him;* and for the truth of his commission and his communication, appeals to works such as no power but that of God can effect; if, upon his making this appeal, these works are instantly and openly done at his bidding; there is no evading of the conclusion, that this is *a divine interposition*, at the

moment, in attestation of the authority he claims, and of the truth of what is declared. The professed divine ambassador says: '*This is from God;*' and God, by the instant intervention of the miracle, sets his seal to it, says, as by a voice from heaven, if not even more decisively, '*It* IS *from me!*' The sole questions requiring to be answered, in order to the legitimacy of the conclusion, are these two: '*Is the work one which God alone can do?*' and, '*Is it actually done?*' If these questions are settled in the affirmative, there is no reasonable ground on which the conclusion can be withstood."

The foregoing reasoning as to the testimonial connection between the miracle and inspiration, seems to us to be abundantly confirmed by the example of our Lord. In the case of the paralytic, he claimed, in the first instance, to exercise a special prerogative of God. The scribes were shocked at the blasphemy. They looked upon it as altogether incredible, that a man should be entrusted with any such authority. *And Jesus, knowing their thoughts, said, Wherefore think ye evil in your hearts? For whether is easier to say, Thy sins be forgiven thee; or to say, Arise, and walk?* That is, which is antecedently the most improbable, that I should be commissioned to forgive sin, or to control the course of nature? Is there not the same presumption against the one as the other? Are they not both equally the supernatural, and, in that respect, equally unlikely? If, now, I can demonstrate to your senses that I have the power in one case, will not that convince you that I have it also in the other? If, by a word, I can arrest this disease and restore health and energy to this palsied frame, will you not believe that I am likewise commissioned to remit sin? Their silence indicated that the scribes acknowledged the force of the appeal. They instinctively felt, that if Jesus could do the one, there was no reason for saying that he could not do the other. The intrinsic improbability of both was precisely the same. *But that ye may know that the Son of man hath power on earth to forgive sins, (then saith he to the sick of the palsy,) Arise, take up thy bed, and go unto thine house. And he arose, and departed to his house.* The effect was electric; the multitudes felt that he had made out his case, *and they marvelled, and glorified God, which had given such power unto men.* We venture to say that the same effect would have been produced upon every unsophisticated mind that witnessed the scene.

In this case, all the conditions of our argument are complied with. The miracle is appealed to as the proof of the commission; it is treated as belonging to the same category of the supernatural, as being a specimen of the kind of thing which is claimed, and as pledging the character of God for the truth of what is affirmed.

This case seems to us to go still further, and implicitly to rebuke the opinion of those who make the doctrine vouch for the

divine original of the miracle. The Jews were right in insisting upon the exclusive authority of God to pardon sin. It *was* blasphemy for a creature to claim and exercise the power in his own name. No such doctrine could commend itself to a Jew as good. If, therefore, the pretensions of the Saviour, in the case before us, had been tried only upon internal grounds, or if the miracle had been estimated only by the nature of the truth it was invoked to sustain, there would have been some pretext for the blasphemous insinuation, that he wrought his wonders by the finger of Beelzebub. Besides, there are other instances in which Jesus appealed from the internal improbability of the doctrine to the external authority of the miracle. When he announced the truths in reference to his own person, offices, and works, which were so offensive to his countrymen, on account of their alledged discrepancy with the pervading tenour of the prophets, he, in no case, undertakes to obviate their prejudices by removing the ground of their objections, and showing that the doctrine was intrinsically excellent, but appeals directly and at once to the miracle, as to that which ought to be an end of controversy. *The works that I do in my Father's name, they bear witness of me. If I do not the works of my Father, believe me not. But if I do, though ye believe not me, believe the works; that ye may know and believe that the Father is in me, and I in Him.* He suspends the guilt of the Jews in rejecting him upon the sufficiency of his miracles to authenticate his mission. *If I had not done among them the works which none other man did, they had not had sin.*

The theory which proves the doctrine by the miracle, is so much more simple, obvious, and direct, and so much more in accordance with the general tone of Scripture and the spontaneous suggestions of our own minds, that no counter-hypothesis would ever have been devised, had it not been for the philosophic error, that real miracles may be performed by a power inherent in the spirits of evil. That error we have exposed, as arising from a wrong conception of the nature of finite power; and the argument may be regarded as complete, that miracles are always the great seal of heaven; infallible credentials of a divine commission. Whoever works them must have God with him.

But it may be objected, that it avails nothing to prove that God is the only author of a real miracle, and that all such miracles impress the seal of His authority upon the doctrine, so long as it is admitted, that superior intelligences can produce effects which to us, in our ignorance, shall seem to be miraculous. We want a criterion by which to distinguish these achievements of a higher knowledge from the supernatural works of God. Cudworth applies the term supernatural to both classes of effects; though he is careful to indicate that the feats of demons do not transcend the sphere of nature and her laws. "Wherefore it seems," says he,

"that there are two sorts of miracles or effects supernatural. First, such as, though they could not be done by any ordinary and natural causes here amongst us, and in that respect may be called supernatural; yet might, notwithstanding, be done, God permitting only, by the ordinary and natural power of other invisible created spirits, angels or demons. As, for example, if a stone, or other heavy body should first ascend upwards, and then hang in the air, without any visible either mover or supporter, this would be to us a miracle or effect supernatural; and yet, according to vulgar opinion, might this be done by the natural power of created invisible beings, angels or demons; God only permitting, without whose special providence, it is conceived, they cannot thus intermeddle with our human affairs. * * * But, secondly, there is another sort of miracles, or effects supernatural, such as are above the power of all second causes, or any natural created being whatsoever, and so can be attributed to none but God Almighty Himself; the author of nature, who, therefore, can control it at pleasure."

The distinction is a just one, though we do not like the application of the terms, miracle and supernatural, to the first class; the broad line which distinguishes them from the works of God, is, that they are within the sphere of nature. But still, may not these achievements of the creature be palmed upon us as real miracles, and are we not in danger of being deceived by them, unless we have some criterion apart from the nature of the phenomena, by which we can distinguish the real from the apparent? Must we not, after all, fall back upon the doctrine to settle the question whether a real miracle has been wrought? whether the phenomenon in question is in the sphere of the natural or not? This evidently comes to the same thing with the hypothesis we have been endeavouring to set aside, and if it could be consistently maintained, all that we have said would go for nothing. But among those who concur in our views of the testimonial character of the miracle, the difficulty is commonly solved by appealing to the goodness of God. The thesis is, that God will not permit His weak and ignorant creatures to be deceived by counterfeits of His own seal; He will not suffer demons to imitate miracles in cases in which they are likely to mislead; He will restrain the exercise of their power. This, if we understand him, is the position which Dr. Wardlaw has taken. It is the position taken by Mosheim, in his valuable notes to Cudworth. God will never suffer anything that can be fairly taken for a miracle, or that is calculated to have that effect upon us, to be wrought in attestation of falsehood. We must be permitted to say that the inference here is contradicted by all analogy. We have no means of ascertaining beforehand, how far God is likely to limit the discretion of His creatures, or to prevent the machinations of malignity and falsehood. The

argument from His goodness is shown to be lame, from the uniform experience of the world. We see nothing in the distinctions of Dr. Wardlaw to render that experience inapplicable to the case.

The effect of all such prevarications and evasions, is to destroy the value of the miracle as a proof. If it possesses no authority in itself, except as supported by foreign considerations, and if these are neither clear nor obvious, it seems to be of comparatively little use; it is better to eject it from the scheme of evidences at once. But these distinctions are altogether unnecessary. The true doctrine is, that, as the miracle proves by an evidence inherent in itself, no miracles should be admitted as the credentials of a messenger or doctrine, but those which carry their authority upon their face. Doubtful miracles are in the same category with doubtful arguments; and if a religion relies upon this class alone to substantiate its claims, it relies upon a broken reed. There are unquestionably phenomena which, surveyed from a higher point of knowledge, we should perceive at once to be perfectly natural, and yet to us they may have the wonder and the marvel of the true miracle. We can lay down no criteria by which to distinguish in every case betwixt the natural and the supernatural. The effect is, where the line cannot be drawn, that the wonders are not to be accepted. We do not know them to be miracles, and consequently have no right to give them the weight of miracles. When the witness is suspected, we discard his testimony. Let it be conceded that the doctrine is good; that only shows it to be true, and not that God has revealed it. The same superior knowledge which enables a demon to transcend my experience of nature, may enable him to transcend my science; and so, after all, the good doctrine come to me from a very bad source. Devils sometimes speak truth, though not from the love of it. Shall we say that God will prohibit them from trifling with our credulity? This may be a trial of our understandings; the design may be to measure our love of truth, and to see whether we shall narrowly scrutinize the evidence which is submitted to our minds. We know not how far it may be proper that God should restrain His creatures in the exercise of their own energies. Suppose an unprincipled man of science should go among savages, and find that his attainments could give to him the distinction of being the great power of God, would God arrest his exhibitions, because they were deceiving and cheating the ignorant multitude? Has He ever arrested the frauds of priests who, under the guise of a rare acquaintance with philosophy, have gulled the populace with their marvellous achievements? This hypothesis is destitute of all probability and of all analogy. The only consistent course is to treat all suspected miracles as we treat all prevaricating witnesses. And if there were no other kinds of miracles but these, we should say that no doctrine could be authenticated by such evidence.

But, as Cudworth has suggested, there are some miracles which carry their credentials upon their face—so clearly above nature and all secondary causes, that no one can hesitate an instant as to their real character. There are some things which we pronounce intuitively to be the sole prerogative of God. Others may be doubtful; but these are clear as light. This is the class of miracles on which a religion must rely. These are seals, where the impression is distinct and legible—about which there can be no hesitation or uncertainty. These are the conclusive arguments to which a sound understanding feels itself justified in adhering. That the criterion of the miracle must be sought in itself, and that, where it cannot be definitely traced, the effect of the miracle as a proof is destroyed, is only the application to this department of evidence of the universal rules of probability. An argument must consist in its own light; and according as that light is feeble or strong, the argument is weak or conclusive. If a man should come to us, professing to be a messenger from God, and produce no clearer credentials than such effects as Cudworth has enumerated—the walking upon water, the suspending of a stone in the air, or the cleaving of a whetstone by a razor—effects which might unquestionably be produced by higher laws suspending or holding in check the lower—we should feel no more difficulty in rejecting him, than in rejecting a pretended syllogism with two terms, or a prevaricating witness. His pretensions might be true; but we should quote to him the maxim, "*De non apparentibus et non existentibus, eadem est ratio.*"

When we turn to the miracles of the Bible, with a few trifling exceptions, which are redeemed from suspicion by their connection with the others, as doubtful testimony may be confirmed by corroborating circumstances; when we turn to the miracles of the Bible, we feel intuitively that they are of a character in themselves and on a scale of magnitude which render the supposition of secondary causes ridiculously absurd. The scenes at the Red Sea, the cleaving of the waters, the passing over of the Israelites on dry land between the fluid walls, the pillar of cloud by day and of fire by night; the daily supply of manna from the skies: effects like these carry the evidence of their original on their face. There is no room for doubt. And so, in the New Testament, the conversion of water into wine, the stilling of the tempest, the raising of the dead, the instant cure, without means or appliances, of inveterate diseases; the feeding of thousands with a few loaves, which involves the highest possible exercise of power, that of creation; and, above all, the resurrection of Jesus himself: cases like these have nothing of ambiguity in them. They reveal, at a glance, the very finger of God. The supernatural and the contranatural are so flagrant and glaring, that he that runs may read. We may not be able to say what a devil or an angel can do; but

there are some things which we can confidently say that he cannot do; and these are the things from which the miracles of our religion have been chosen.

We have insisted upon this point at some length, because the neglect of the distinction has been at the bottom of all the frivolous evasions which have had no other tendency than to weaken our faith in the divine authority of the miracle.

The place, consequently, which we are disposed, as the reader may already have collected, to assign to the miracle, is the very front rank in the Christian evidences. We cannot understand how the question of a revelation or a divine commission can be entertained at all, until the credentials are produced. Mr. Trench laments the stress which has been laid upon them by modern apologists, and thinks it has contributed to obscure or to weaken the spiritual power of the gospel. We are not prepared to deny that many have been strenuous advocates of the miracles, who were strangers to the life of Christianity. It is one thing to believe in miracles, and quite another to believe in the Saviour of mankind. Faith in the divine authority of our religion is not necessarily faith in Christ. We admit all that he has said of the beauty, and glory, and self-evidencing light of the doctrine, and subscribe fully to the sentiment contained in the passage of Calvin's Institutes, to which he has referred us. That passage asserts, what all the creeds and confessions of the reformed churches, and the creeds and confessions of martyrs and saints in all ages of the world, have always asserted, that true faith in Jesus is not the offspring of logic or philosophy; it is no creature of earth, but the gift of heaven, the production of God's holy Spirit. We would detract nothing from the inward light and power of the gospel, or from the need of supernatural grace. Neither, again, do we complain that Mr. Trench has signalized the ethical value of the Christian miracles, as being at once types and prophecies of greater works upon the soul. He has made an important contribution to our literature, by the successful manner in which he has illustrated this principle in his rich and valuable notes. We agree, too, that the appearance of such a being as Jesus would have been wanting in consistency, if nature had not been made to do homage to his name. An incarnate God could hardly walk the earth without unwonted indications of his presence. Such a wonder must needs draw other wonders after it; and Mr. Trench has strikingly displayed this aspect of the importance of miracles. But still, it does not follow that because miracles are graceful complements of the mission of Christ, that their only use or their chief use is their typical relations to grace, and their harmony with the character and claims of the Saviour. We maintain, on the contrary, that their principal office is to *guarantee an external, objective revelation*, by

which we can try the spirits whether they be of God. They are the criterion by which a real is distinguished from a pretended revelation; the mark by which we know that God has spoken, and discriminate His word from the words of men. An external, objective, palpable test is the only one which can meet the exigencies of the case. If men are thrown upon their intuitions, impulses, and emotions, their pretended revelations will be as numerous and discordant as the dialects of Babel. Each man will have his doctrine and his psalm. The necessity of such a test has been universally acknowledged. The Catholic feels it, and appeals to a visible, infallible society, which is to judge between the genuine and spurious; the Protestant feels it, and appeals to his Bible; the Bible bows to the same necessity, and appeals to MIRACLES; these, it triumphantly exclaims, distinguish my doctrines from those of every other book, and seal them with the impress of God. Here, then, is a standard, fixed, stable, certain, with which the experiences of men must be compared. *To the law and to the testimony: if they speak not according to this word, it is because there is no light in them.* A religion of authority is the only bulwark against fanaticism, on the one hand, and a dead naturalism on the other.

We have no doubt that if the miracle should be reduced to an obscure or subordinate position in the scheme of Christian evidences, the result would eventually be, that an authoritative, external revelation would be totally discarded. This was the progress of criticism in Germany. Those who prevaricated with miracles prevaricated with inspiration, and we suspect those among ourselves who are offended at the latter, have as little relish for the spirit of the gospel, except when it happens to chime with the breathings of their own minds. We have never had apprehensions of any other species of rationalism in this country, but that which obtains in the school of Schleiermacher. We think that there are symptoms in various quarters, that it is insinuating itself into the minds of those of our scholars and reflecting men, who have not thoroughly studied the grounds of his philosophy. It invites by its warmth, and ardour, and life; it gives a significancy to the history of Jesus which falls in with the pensive longings of a meditative spirit; it speaks of redemption, and pardon, and holiness, and sin; it employs, except in relation to the resurrection, the very language of piety; and seems to put on a broad and permanent foundation, the holy catholic church and the communion of the saints. But as it has no external standard of truth, it must repudiate all precise dogmatic formulas, and reduce the doctrine to a general harmony of feeling or pervading uniformity of sentiment. Religion must be a life without a creed. But as the understanding must have something to feed on, each man will be tempted to analyze the operations of his own consciousness of

God, and reduce to the precision of logical representation, the inspirations of his own soul. And when it is seen that the religion is supported by a philosophy essentially pantheistic, that the differences betwixt holiness and sin are stripped of all moral import; and that a stern necessity underlies the whole constitution of things, we may well tremble at the results, should this scheme be introduced in place of an authoritative Bible. It is because we feel that the tendency of every disparaging remark in relation to miracles, is to set aside the Bible in the aspect of authority, that we are so earnest to rebuke it. We love spiritual religion, but we abhor fanaticism. We detest bigotry, but we love the *truth;* and we believe that there is a truth in relation to God and to ourselves, which ought to be embraced in the form of definite propositions, and not apprehended as vague sentiments. There are truths which are powerful in proportion as they are clear and articulate, and worthless unless they are distinctly understood.

III. We come now to the last point which remains to be discussed—the credibility of miracles; and here we enter into the very citadel of the controversy between the friends and opponents of divine revelation. Here the question is fairly encountered, can God stand to man in the attitude of a witness to the truth? Can He declare to other intelligent beings, the creatures of His own power, facts which He knows, as one man can communicate knowledge to another? Or, if we admit the possibility of individual inspiration, in conformity with the laws of our mental constitution, can God authenticate that inspiration to a third party? Can He enable others to prove a commission from Him? To answer in the affirmative, is to admit the credibility of miracles. There are certainly no natural laws by which we can recognize any communications as authoritatively from heaven. Whether the miracles be visible or invisible; a supernatural operation upon the mind, producing an immediate consciousness of the divine voice, or supernatural phenomena addressed to the senses, producing the conviction of the divine presence: no matter what may be the process—it must be evidently miraculous, as out of and against the ordinary course of nature.

It would be obviously impossible to show, by any direct processes of argument, that there is anything in the mode of the divine existence, which precludes the Deity from holding intercourse with His creatures, analogous to that which they hold with each other. We can perceive nothing in the nature of things which would lead us to suppose that God could not converse with man, or make man the messenger of His will.

Analogy, on the contrary, would suggest that, as persons can here communicate with each other—as they can be rendered conscious of each other's existence—as they can feel the presence of one another, and interchange thoughts and emotions, the same

thing might be affirmed of God. It is certainly incumbent upon the rationalist to show how God is precluded from a privilege which, so far as we know, pertains to all other personal existences. Capacity of society and converse seems to be involved in the very nature of personality, and it cannot be demonstrated that there is anything more incomprehensible in the case of a divine than of a human testimony. How one man knows that another man, another intelligence is before him—how he reads the thoughts and enters into the emotions of another being, are problems as profoundly inscrutable as how a man shall know that God talks with him, and imparts to him truths which neither sense nor reason could discover. It deserves farther to be considered, that as all worship involves a direct address of the creature to the Deity, as man must *talk* to God as well as obey his laws, must love and confide in Him as well as tremble before Him—it deserves to be considered how all this is practicable, if the communications are all to be confined to the feebler party. Religion necessarily supposes some species of communion with the object of worship, some *sense* of God; and if this is possible, we see not why the correspondence may not be extended into full consistency with the analogy of human intercourse. Certain it is that the moral nature of man, which leads him to converse with God, has in all ages induced him to hope and expect that God would converse with him. Every age has had its pretensions to divine revelations—there have always been seers and prophets. Many have been false—have had nothing intrinsic or extrinsic to recommend them, and yet they have succeeded in gaining a temporary credit, because they addressed themselves to the natural belief that a revelation would indeed be given. Whence this natural expectation, whence this easy credulity, if the very conception of a direct communication from God involved a contradiction and absurdity?

Arguments of this sort are certainly not without their weight. They never have been and they never can be answered in the way of direct refutation. The approved method is to set them aside by the sweeping application of the principle upon which the Sadducees set aside the resurrection of the dead. Revelation and its proofs are equally supernatural, and whatever is supernatural must be false. "No just notion of the true nature of history," says Strauss, "is possible, without a perception of the inviolability of the chain of finite causes, and of the impossibility of miracles." The first negative canon, which this remarkable author prescribes, for distinguishing betwixt the historical and fabulous, is "when the narration is irreconcileable with the known and universal laws which govern the course of events." He affirms that "according to these laws, agreeing with all just philosophical conceptions, and all credible experience, the absolute cause never disturbs the chain of secondary causes by single arbitrary acts of interposition, but

rather manifests itself in the production of the aggregate of finite causalties, and of their reciprocal action." In opposition to this desolating doctrine, we shall undertake to set, in a clear light, the principle that in all cases of competent testimony, where the witnesses have honestly related their own convictions, and where they were in a condition to judge of the facts, possibility is the sole natural limit to belief. We are bound to believe, upon competent testimony, what is not *demonstrably impossible*. The application of this law to all other cases of antecedent improbability but the supernatural, will hardly be questioned, and we shall therefore discuss it with special reference to miracles.

It would seem to be a self-evident proposition, that whatever is, and is, at the same time, adapted to our cognitive faculties, is capable of being known. No doubt but that man is a little creature, and that there are and forever will remain things, locked up in the bosom of Ominiscience, which his slender capacities are unfitted to comprehend. But, then, there are other things, to which his faculties are unquestionably adjusted—which are not only cognizable in themselves, but cognizable by him. All that is necessary in reference to these is, that they should stand in the proper relation to the mind. When this condition is fulfilled, knowledge must necessarily take place. If an object be visible, and is placed before the eye in a sound and healthful condition of the organ, it must be seen; if a sound exist, and is in the right relation to the ear, it must be heard. Let us now take a supernatural fact; such as the raising of Lazarus from the dead, as recorded in the Gospel of John. There is not a single circumstance connected with that event which lies beyond the cognizance of our faculties. Everything that occurred could be judged of by our senses. That he was dead, that he was buried, that the process of putrefaction had begun, that he actually came from the grave at the voice of Jesus, bound hand and foot in his graveclothes, and that he subsequently took his part in human society, as a living man, are phenomena which no more transcend the cognitive faculties of man than the simplest circumstances of ordinary experience. We are not now vindicating the reality of this miracle—that is not necessary to the argument in hand. All that we contend for is, that if it had been a fact, or if any other real instance of the kind should ever take place, there would be nothing in the nature of the events, considered as mere phenomena, which would place them beyond the grasp of our instruments of knowledge. They would be capable of being known by those who might be present at the scene—capable of being known according to the same laws which regulate cognition in reference to all sensible appearances. Our senses would become the vouchers of the fact, and the constitution of our nature our warrant for crediting our senses.

The skeptic himself will admit that if the first facts submitted

to our experience were miraculous, there could be no antecedent presumption against them—and that we should be bound to receive them with the same unquestioning credence with which a child receives the earliest report of its senses. This admission concedes all that we now contend for—the possibility of such a relation of the facts to our faculties as to give rise to knowledge—such a connection betwixt the subject and object as to produce, according to the laws of mind, real cognition. This being granted, the question next arises, does the standard of intrinsic probability, which experience furnishes in analogy, destroy this connection? Does the constitutional belief, developed in experience—that like antecedents are invariably followed by like consequents—preclude us from believing, subsequent to experience, what we should be compelled, by the essential structure of our nature, to believe antecedent to experience? Does analogy force a man to say that he does not see what, if it were removed, he would be bound to say that he *does* see?

To maintain the affirmative is to annihilate the possibility of knowledge. The indispensable condition of all knowledge is, the veracity of consciousness. We have the same guarantee for the sensible phenomena which are out of the analogy of experience, as for those phenomena from which that experience has been developed. If, now, consciousness cannot be credited in one case, it can be credited in none—*falsum in uno, falsum in omnibus.* If we cannot believe it after experience, it must be a liar and a cheat, and we can have no grounds for believing it prior to experience. Universal skepticism becomes the dictate of wisdom, and the impossibility of truth the only maxim of philosophy. Consciousness must be believed on its own account, or it cannot be believed at all; and, if believed on its own account, it is equally a guarantee for every class of facts, whether supernatural or natural. To argue backwards, from a standard furnished by consciousness, to the mendacity of consciousness, in any given case, is to make it contradict itself, and thus demonstrate itself to be utterly unworthy of credit. There is no alternative betwixt admitting that, when a supernatural phenomenon is vouched for by consciousness, it is known, and, therefore, exists—or admitting that no phenomenon whatever can be known. This knowledge rests upon the same ultimate authority with all other knowledge.

But, it may be asked, is not the belief of the uniformity of nature a datum of consciousness, and does not the hypothesis of miracles equally make consciousness contradict itself? By no means. There is no real contradiction in the case. The datum of consciousness, as truly given, is that, under the same circumstances, the same antecedent will invariably be followed by the same consequents. It is not that when the antecedent is given, the consequent will invariably appear, but that it will appear, if

the conditions, upon which the operation of its cause depends, are fulfilled. Cases constantly happen in which the antecedent is prevented from putting forth its efficacy—it is held in check by a power superior to itself. "Continually we behold, in the world around us, lower laws held in restraint by higher—mechanic by dynamic, chemical by vital, physical by moral—yet we say not, when the lower thus gives place to higher, that there was any violation of law, that anything contrary to nature came to pass: rather we acknowledge the law of a greater freedom swallowing up the law of a lesser. Thus, when I lift my arm, the law of gravitation is not, as far as my arm is concerned, denied or annihilated: it exists as much as ever; but is held in suspense by the higher law of my will. The chemical laws which would bring about decay in animal substances, still subsist, even when they are hemmed in and hindered by the salt which keeps these substances from corruption."* When the consequents, therefore, in any given case, are not such as we should previously have expected, the natural inference is, not that our senses are mendacious, and that the facts are not what consciousness represents them to be, but that the antecedents have been modified or counteracted by the operation of some other cause. The conditions upon which their connection with their sequences depends do not obtain. The facts, as given by the senses, must be taken, and the explanation of the variety is a legitimate problem of the reason.

Suppose, for example, that a man, uninstructed in physical science, should visit the temple of Mecca, and behold the coffin of Mahomet, if the story be true, unsustained by any visible support, suspended in the air, would it be his duty to believe that, because all experience testifies that heavy bodies, left to themselves fall to the ground, therefore the phenomenon, as given by his senses, in the present case, must be a delusion?—or would it not rather be the natural inference, as he could not possibly doubt what he saw—that the coffin was *not* left to itself—that, though inscrutable to him, there must be *some* cause which counteracted and held in check the operation of gravity? "In order," says Mill,† "that any alledged fact should be contradictory to a law of causation, the allegation must be, not simply that the cause existed

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* Trench on Miracles.

† Mill's System of Logic. This representation requires to be somewhat modified, as it seems to imply that a previous knowledge of the cause is necessary to render the miracle credible, which is, by no means, the case. On the contrary, every phenomenon, whether natural or supernatural, must, in the first instance, authenticate itself, and, after it has been accepted as a fact, the inquiry into the cause begins. All that the constitution of our nature positively determines, is that it must have some cause—that it cannot be an absolute commencement. We do not, therefore, believe the miracle, because we know that there is a cause which can produce it; but we know that there is such a cause, because we know the effect has been produced.

without being followed by the effect, for that would be no uncommon occurrence, but that this happened in the absence of any adequate counteracting cause. Now, in the case of an alledged miracle, the assertion is the exact opposite of this. It is, that the effect was defeated, not in the absence, but in consequence of a counteracting cause, namely, a direct interposition of an act of the will of some being who has power over nature, and, in particular, of a being whose will, having originally endowed all the causes with the powers by which they produce their effects, may well be supposed able to counteract them. A miracle, as was justly remarked by Brown, is no contradiction to the law of cause and effect; it is a new effect, supposed to be produced by the introduction of a new cause." A man is, accordingly, in no case, permitted to call into question the veracity of his senses; he is to admit what he sees, and what he cannot but see, and, when the phenomena lie beyond the range of ordinary experience, it is the dictate of philosophy to seek for a cause which is adequate to produce the effect. This is what the laws of his nature require him to do.

It is obvious, from these considerations, that, if sensible miracles can exist, they can be *known;* and, if they can be known by those under the cognizance of whose senses they immediately fall, they can be proved to others through the medium of human testimony. The celebrated argument of Mr. Hume, against this proposition, proceeds upon a false assumption as to the nature of the law by which testimony authenticates a fact. He forgets that the credibility of testimony is in itself—not in the object for which it vouches: it must be believed on its own account, and not that of the phenomena asserted. In all reasoning upon this subject, the principle of cause and effect lies at the basis of the process. A witness, strictly speaking, only puts us in possession of the convictions of his own mind, and the circumstances under which those convictions were produced. These convictions are an effect for which the constitution of our nature prompts us to seek an adequate cause; and, where no other satisfactory solution can be given, but the reality of the facts, to which the witness himself ascribes his impressions, then we admit the existence of the facts. But, if any other satisfactory cause can be assigned, the testimony should not command our assent. There is room for hesitation and doubt. If a man, for example, afflicted with the jaundice, should testify that the walls of a room were yellow, we might be fully persuaded of the sincerity of his own belief; but, as a cause, in the diseased condition of his organs, could be assigned, apart from the reality of the fact, we should not feel bound to receive his statement. Two questions, consequently, must always arise in estimating the value of testimony. The first respects the sincerity of the witnesses—do they or do they not express the real impressions that have been made upon their own minds? This may be called the

fundamental condition of testimony;—without it, the statements of a witness cannot properly be called testimony at all. The second, respects the cause of these convictions—are there any known principles, which, under the circumstances in which the witnesses were placed, can account for their belief, without an admission of the fact to which they themselves ascribe it? When we are satisfied upon these two points—that the witnesses are sincere, and that no causes apart from the reality of the facts, can be assigned in the case, then the testimony is entitled to be received without hesitation. The presumption is always in favour of the cause actually assigned, until the contrary can be established. If this be the law of testimony, it is evident that the intrinsic probability of phenomena does not directly affect its credibility. What is inherently probable, may be proved upon slighter testimony than what is antecedently unlikely—not that additional credibility is imparted to the testimony—but additional credibility is imparted to the phenomena—there being two separate and independent sources of proof. The testimony is still credible only upon its own grounds. In the case, accordingly, of sensible miracles, in which the witnesses give unimpeachable proofs of the sincerity of their own belief, it is incumbent upon the skeptic to show how this belief was produced, under the circumstances in which the witnesses were placed, before he is at liberty to set aside the facts. He must show "how the witnesses came to believe so and so," if there were no foundation in reality. The testimony must be accounted for and explained, or the miracle must be admitted through the operation of the same law which authenticates testimony in every other case. It is an idle evasion to say that men sometimes lie; no doubt there are many lies, and many liars in the world. But we are not speaking of a case in which men fabricate a story, giving utterance to statements which they do not themselves believe. That is not properly a case of testimony. We are speaking of instances in which the witness *honestly* believes what he says; and surely there are criteria by which sincerity can be satisfactorily established. With respect to such instances, we affirm that there can be but two suppositions—either the witness was deceived, or the facts were real. The question of the credibility of the testimony turns upon the likelihood of delusion in the case; and, where it is one in which the delusion cannot be affirmed without affirming at the same time, the mendacity of the senses, the miracle is proved, or no such thing as extrinsic proof exists on the face of the earth.

But it may be contended that although testimony has its own laws, and must be judged of by them, yet, in the case of miracles, there is a contest of opposite probabilities—the extrinsic, arising from testimony in their favour—and the intrinsic, arising from analogy, against them, and that our belief should be determined

by the preponderating evidence, which must always be the intrinsic, in consequence of its concurrence with general experience. The fallacy here consists in supposing that these two probabilities are directed to the same point. The truth is, the internal probability amounts only to this, that the same antecedents, under the conditions indispensable to their operation, will produce the same effects. The external is, that in the given case, the necessary conditions were not fulfilled. There is, consequently, no collision, and the law of testimony is left in undisturbed operation. It is clear that Mr. Hume would never have thought of constructing his celebrated argument against the credibility of miracles, if he had not previously believed that miracles were phenomena which could never authenticate themselves; that they were, in their own nature, incapable of being known. This is the conclusion which he really aimed to establish, under the disguise of his deceitful ratiocinations, the conclusion which legitimately flows from his premises, and a consistent element of that general system of skepticism which he undertook to rear, by setting our faculties at war with each other, and making the data of consciousness contradictory either in themselves or their logical results. If he had believed miracles to be cognizable, he would, perhaps, have had no hesitation in admitting, that what a man would be authorized to receive upon the testimony of his own senses, he would be equally authorized to receive upon the testimony of the senses of other men. What is cognizable by others—all having the same essential constitution—is cognizable by us through them. We see with their eyes, and hear with their ears. The only case in which the intrinsic and extrinsic probabilities come into direct collision, is that in which the alledged fact involves a contradiction, and is, therefore, impossible. In all other cases, testimony simply gives us a new effect.

The skepticism of Mr. Hume, and the disciples of the same school, it is almost needless to observe, is in fatal contradiction to the whole genius and spirit of the inductive philosophy. Observers, not masters—interpreters, not legislators, of nature—we are to employ our faculties, and implicitly receive whatever, in their sound and healthful condition, they report to be true. We are not to make phenomena, but to study those which God has submitted to our consciousness. If antecedent presumptions should be allowed to prevail, the extraordinary as contradistinguished from the facts of every-day life, the new, the strange, the uncommon, the *mirabile* any more than the *miraculum*, never could be established. To make a limited and uniform experience the measure of existence is to deny that experience itself is progressive, and to reduce all ages and generations to a heartless stagnation of science. The spirit of modern philosophy revolts against this bondage. It has long since ceased to wonder, long since learned to recognize every-

thing as credible which is not impossible; it explores every region of nature, every department of existence; its excursions are for facts; it asks for nothing but a sufficient extrinsic probability; and, when this is furnished, it proceeds with its great work of digesting them into order, tracing out their correspondences and resemblances, referring them to general laws, and giving them their place in the everwidening circle of science. When they are stubborn and intractable, standing out in insulation and independence, and refusing to be marshaled into systems, they are still retained as phenomena yet to be accounted for, and salutary mementoes of human ignorance. But no man of science, in the present day, would ever think of rejecting a fact because it was strange or unaccountable. The principle is universally recognized that there are more things in heaven and earth than are dreamed of in our philosophy. If Hume's laws were the laws of philosophy, where would have been the sciences of chemistry, of galvanism, electricity, geology and magnetism? With what face could the palæontologist come out with his startling disclosures of the memorials of extinct generations and perished races of animals? What would be said of aërial iron and stones? and where would have been that sublimest of all theories, the Copernican theory of the heavens? The philosopher is one who regards everything, or nothing, as a wonder.

The remarks of Butler are not only philosophically just, but worthy of Bacon himself, when he asserts that miracles must not be compared to common natural events, or to events which, though uncommon, are similar to what we daily experience, but to the extraordinary phenomena of nature. It is nothing worth to say that these extraordinary phenomena may be subsequently explained, in the way in which physical philosophers account for events. That was not known when they were first authenticated to consciousness. They had to be believed before they could be explained. Miracles, too, when we reach a higher pinnacle of knowledge, may connect themselves as clearly with the general scheme of God, as the wonders of physics. The conclusion, then, would seem to be established, that as the will of God is the sole measure of existence, so the power of God, or the possibility of the event, is the sole limit to the credibility of testimony.

The only question, therefore, which remains to be discussed, is, whether miracles are possible. This is simply the question concerning the existence of a personal God. If there is a being of intelligence and will, who created and governs the world, there can be no doubt, that the same power which at first ordained, can subsequently control the laws of nature, and produce effects independently of, as easily as in concurrence with, the secondary causes which He has appointed. Accordingly none will be found to deny the physical possibility of miracles, but those who deny a

great First Cause, or those who resolve the relations of the finite and infinite into a principle of immanence or identity, totally destructive of all freedom and intelligence, and of all essential separateness of being on the part of what they profess to call God. The worshippers of the supremacy of law, on the one hand, who see nothing in nature but a blind succession of events, and the philosophers of the imagined absolute, upon the other, who have ascended to the fountain of universal being, and traced the process by which the conditioned has been propagated and derived, unite in the warfare against miracles; because, in either case, the miracle is fatal to their pretensions. They cannot reconcile it with the stern necessity and rigid continuity which their speculations imperatively demand. With the avowed atheist, it is useless to contend. It is enough that he gets quit of miracles only by getting quit of God. And if he should be induced to admit their phenomenal reality, he could as easily resort to subterfuges and pretexts to explain them away, as he can dispense with intelligence and wisdom in accounting for the arrangement and order of the universe. To him whom the glorious wonders of creation and providence, renewed with every morning sun—whom what Philo calls "the truly great, the production of the heaven, the chorus of the fixed and erratic stars, the enkindling of the solar and lunar lights, the foundation of the earth, the outpouring of the ocean, the course of rivers and flowing of perennial fountains, the change of revolving seasons, and ten thousand wonders more"—reveal nothing of design, the most astonishing exhibitions of supernatural power could appear as nothing but fantastic freaks. As, according to Lord Bacon, God never wrought a miracle to convince an atheist, it would be frivolous to vindicate to him the possibility of such phenomena, or to take into serious account principles which he holds only by the abnegation of his nature. If there be no God, we care very little whether there are miracles or not.

But there is a class of philosophers, whom unlettered Christians are very apt to regard as closely approximating to Atheists, but who themselves profess to be very zealous for the divine existence and perfections, whose poison is as insinuating as it is dangerous, and whose speculations have mainly contributed to undermine the credibility of the miracle. For the purpose which we have in view, they may all be reckoned as Pantheists. It is obvious that those who, with Spinoza, start out from the notion of substance, and, by logical deduction from the elements contained in it, reduce the finite to a modification of the infinite, come to the same ultimate conclusion with those who start out from the analysis of consciousness, and by the phenomena of human knowledge are led to confound thought and existence, and identify the subject and the object. In either case, essential being is one, and the

differences of things are only varieties in the modes of manifestation. In the eclectic system of Cousin, both processes are combined: the infinite is the substance; the finite the attributes or affections;—the infinite is the real, the permanent, the unchanging; the finite is the phenomenal, the fluctuating, the variable;—the infinite is the cause; the finite, the effect. The one is the complement of the other; neither can exist or be known apart.

The fundamental error of Pantheism is, that it overlooks the fact of creation. Let this be denied, and we see no way of avoiding the philosophy of Spinoza or of Hegel. We must seek a logical and a necessary connection between the finite and the infinite. It must be that of a substance with its accidents, or a mind with its thoughts, or a blind cause with its effects. Deny creation, and you can conceive of no higher existence of the world, than as a thought of the Eternal Mind—an object to the knowledge of God; and contemplated in this light it has no real being—it is only God himself; it is only a subjective phenomenon of the divine nature. Postulate creation, and these eternal thoughts, or, as Plato would call them, these eternal ideas, become realized in finite substances, which have a being—dependent, to be sure—but still a being of their own. They are no longer the consciousness of God himself. But creation, as distinct from emanation or development, necessarily implies the voluntary exercise of power. It is a thing which might or might not be. It is in no sense necessary. Hence the relation of the finite to the infinite, upon this hypothesis, becomes purely contingent. It is a relation instituted by will and dependent upon will. In other words, we have no longer a necessary, but a free cause. This aspect of the case changes the whole problem of philosophy and gives a new direction to the current of speculation. It must now flow in the channels of induction and not of deduction. When we speak of creation as contingent, we do not mean to represent it as arbitrary. The will of God, so far from being analogous to caprice, can never be divorced from His wisdom and goodness. He must always act like Himself; and if He create a world or a universe, it must be to answer an end worthy of His exalted perfections. But while nothing can be conceived as done by Him unworthy of His name, no knowledge of his attributes can ever conduct us, *a priori*, to the nature of the particular concrete objects to which He might determine to give being. It would enable us to speak of their general character and aim, but it would throw no light upon their specific and individual differences. No man knows what kind of inhabitants there are in the moon, or whether there are any. He cannot deduce from the attributes of God any firm solution of the problem; and yet he is persuaded, that, however solved, these attributes are illustrated. It is one thing to be able to say, that whatever God does must be wise and good; it is quite a different

thing to be able to specify what those wise and good things may be. Speculation, therefore, must abandon the law of rigid deduction, when the starting-point is a free, voluntary, intelligent cause, a Person. The question then becomes one concerning the free determinations of a will regulated by wisdom and goodness. It is a question concerning design. Necessity obtains only in relation to its general character—all else is contingent. Creation gives us at once a personal God and final causes. It gives us real existences apart from God, which are precisely what He chose to make them; and final causes give us a plan, which we have no means of knowing in its special adaptations and general order, except as it is manifested in the course of experience, or supernaturally revealed. It is at this fact of creation that the pantheistic philosophy has stumbled; and, in stumbling here, it has as thoroughly exploded design as it has miracles. The argument is as complete in the one case as the other; and we would impress it upon those who permit themselves to be entangled in these cobwebs of transcendental metaphysics, that while they are revolting from the supernatural on the ground that it contradicts their philosophy, and pronouncing all miracles to be absolutely impossible—they are, at the same time, revolting from all manifestations of intelligence, and pronouncing their own most familiar consciousness to be also an impossibility.

Pantheism, in its common illustrations of the universe, has more of poetry than of truth. It represents it as an organic whole, whose unity is preserved by a regular series of separate developments, concurring in a common result. This seems to be the notion, if he had any, which Strauss intended to convey, when he said: "Since our idea of God requires an immediate, and our idea of the world, a mediate divine operation; and since the idea of combination of the two species of action is inadmissible: nothing remains for us but to regard them both as so permanently and immoveably united, that the operation of God on the world continues forever and everywhere twofold, both immediate and mediate; which comes just to this, that it is neither of the two, or this distinction loses its value." The universe, in conformity with what we take to be the meaning of this passage, is not unfrequently described as a living organism, the properties of matter being strictly analogous to vital forces, the development of which is like the growth of an animal body. This view, we are sorry to say, disfigures that masterly work, the Cosmos of Humboldt. The design of his introductory remarks is "not solely to draw attention to the importance and greatness of the physical history of the universe—for in the present day these are too well understood to be contested—but likewise to prove how, without detriment to the stability of special studies, we may be enabled to generalize our ideas by concentrating them in one common focus, and thus arrive

at a point of view, from which all the organisms and forces of nature may be seen as one living, active whole, animated by one sole impulse."

Having sufficiently indicated the point at which Pantheism diverges from the truth, and exposed the fallacy of its *a priori* demonstration of the impossibility of miracles, we cannot let it pass without rebuking the presumption of its spirit. In nothing is it more distinguished from the humility of true science than in the magnificence of its pretensions. When we consider the immensity of the universe, and the magnitude and extent of that government, physical and moral, which God has been conducting from the beginning, over all His creatures, whether material or intelligent, the conclusion forces itself upon us, that the plan of the universe is a point upon which we have not the faculties to dogmatize. True science accordingly, aspiring only to a relative knowledge of existence, instead of futile and abortive attempts to construct a universe, or to fix the το παν as a positive element of consciousness, takes its stand, in conformity with the sublime maxim of Bacon, as the minister, not the master—the interpreter, not the legislator of nature. Professing its incompetence to pronounce beforehand what kinds of creatures the Almighty should have made, and what kinds of laws the Almighty should have established, and what kinds of agency He himself should continue to put forth, it is content to study the phenomena presented to it, in order to discover what God has wrought. Without presuming to determine what *must* be, it humbly and patiently inquires what *is*. The spirit of true philosophy is much more a confession of ignorance than a boast of knowledge. Newton exhibited it, when, after all his splendid discoveries, he compared himself to a child who had gathered up a few pebbles upon the seashore, while the great ocean of truth lay undiscovered before him. La Place exhibited it, when he spoke of the immensity of nature, and human science as but a point; and Butler was a living example of it, in the uniform modesty of his confessions and the caution and meekness of his researches. Shall man, the creature of yesterday, whose mother is corruption and whose sister is the worm—who at best can only touch, in his widest excursions, the hem of Jehovah's garment—shall man undertake to counsel the Holy One as to the plan He shall pursue? Is it not intolerable arrogance in a creature, whose senses are restricted to a point, who is confessedly incompetent to declare what ends it may be the design of the Deity to accomplish in creation and providence, who cannot explain to us why the world has sprung into being at all, with its rich variety of scenery, vegetation, and life, who is unable to tell the meaning of this little scene in the midst of which he is placed—is it not intolerable arrogance in him, to talk of comprehending the height and depth, the length and breadth of that

eternal purpose, which began to be unfolded, when creation was evoked from emptiness, and the silence and solitude of vacancy were broken by the songs of angels bursting into light, and which shall go on unfolding, in larger and fuller proportions, through the boundless cycles of eternity? Our true position is in the dust. We are of yesterday, and know nothing. This plan of God—it is high as heaven, what can we know—deep as hell, what can we do? Our ignorance upon this subject is a full and sufficient answer to the folly and presumption of those who confidently assert that its order would be broken and its unity disturbed by the direct interposition of Omnipotence. Who told these philosophers that the plan itself does not contemplate interventions of the kind? Who has assured them that He, who knew the end from the beginning, has not projected the scheme of His government upon a scale, which included the occasional exhibition of Himself in the direct exercise of power? Who has taught them that miracles are an invasion, instead of an integral portion, of the divine administration? It is frivolous to answer objections which proceed upon the infinitely absurd supposition that we know the *whole* of the case.

But though the idea of a universe as a living, self-developing organism cannot be sustained, though the unity of nature is nothing but the harmony of divine operations, and creation and providence only expressions of the divine decrees, though the whole case is one which confessedly transcends our faculties, yet something we can know, and that something creates a positive presumption in favour of miracles. We know that God has erected a moral government over men, and that this sublunary state, whatever other ends it may be designed to accomplish, is a theatre for human education and improvement. We cannot resist the impression that the earth was made for man, and not man for the earth. He is master here below. This earth is a school in which God is training him for a higher and nobler state. If the end, consequently, of the present constitution and course of nature can be helped forward by occasional interpositions of the Deity, in forms and circumstances which compel us to recognize His hand, the order of the world is preserved and not broken. When the pantheist "charges the miracle with resting on a false assumption of the position which man occupies in the universe, as flattering the notion that nature is to serve him, he not to bow to nature, it is most true that it does rest on this assumption. But this is only a change would tell *against* it, supposing that true, which, so far from being truth, is, indeed, its first great falsehood of all, namely the substitution of a God of nature, in the place of a God of men." Admit the supremacy of God's moral government, and there is nothing which commends itself more strongly to the natural expectations of men, than that He shall teach His creatures what was necessary to their happiness according to the exigencies of their

case. Miraculous interventions have, accordingly, been a part of the creed of humanity from the fall to the present hour.

The argument here briefly enunciated requires to be more distinctly considered. There is no doubt that, after all, the strongest presumption which is commonly imagined to exist against the miracle, arises from the impression, that it is an interference with the reign of order and of law. It is regarded as an arbitrary infraction of the course of nature, or a wilful deviation from the general plan of God. It is treated as an aimless prodigy. If this view were correct, it would be fatal to its claims. The moral argument would be so overwhelming that we should be very reluctant to admit any testimony in its favour. It is to obviate this prejudice that so many attempts have been made, like the one already noticed in Trench, and rebuked by Dr. Wardlaw, to transfer the miracle to a higher sphere of nature. Nitzsch very distinctly states the difficulty, and resolves it in the same way that Trench has done. "If a miracle," says he, "were simply an event opposed to nature's laws—a something unnatural and incomprehensible; and if the human understanding, together with entire nature, experienced, through its agency, merely a subversive shock, then would the defence of Christianity—a religion established by means of a grand system of miracles—have to contend against insurmountable difficulties. But the miracles of revelation, with all the objective supernaturalness essentially belonging to them, are in truth somewhat accordant with natural laws, partly in reference to a higher order of circumstances to which the miracles relate, and which order also is a world, a nature of its own kind, and operates upon the lower order of things according to its mode; partly in regard to the analogy with common nature which miracles, in some way or other, retain; and finally, on account of their teleological perfection."*

The same difficulty occurs in Thomas Aquinas;† and his

* Christian Doctrine, p. 83.

† "A qualibet causa derivatur aliquis ordo in suos effectus, cum quælibet causa habeat rationem principii; et ideo secundum multiplicationem multiplicantur et ordines, quorum unus contineatur sub altero, sicut et causa continetur sub causa. Unde causa superior non continetur sub ordine causæ inferioris, sed e converso: cujus exemplum apparet in rebus humanis: nam ex patrefamilias dependet ordo domus, qui continetur sub ordine civitatis, qui procedit a civitatis rectore, cum et hic contineatur sub ordine regis, a quo totum regnum ordinatur. Si ergo ordo rerum consideretur, prout dependet a prima causa, sic contra rerum ordinem Deus facere non potest; si enim sic faceret, faceret contra suam præscientiam, aut voluntatem, aut bonitatem. Si vero consideretur rerum ordo, prout dependet a qualibet secundarum causarum, sic Deus potest facere præter ordinem rerum: quia ordini secundarum causarum ipse non est subjectus; sed talis ordo ei subjicitur, quasi ab eo procedens, non per necessitatem naturæ, sed per arbitrium voluntatis. Potuisset enim et alium ordinem rerum instituere; unde et potest præter hunc ordinem institutum agere, cum voluerit; puta, agendo effectus secundarum causarum sine ipsis, vel producendo aliquos effectus, ad quos causæ secundæ non se extendunt." Summa 1, Quest. 105, Art. 6.

answer strikes us as far more direct and conclusive than any ingenious attempts to divest the miracle of its distinctive and essential character as a supernatural phenomenon. The answer amounts substantially to this : the miracle is against the *order* of nature, but not against the *end* of nature. It is a different way of accomplishing the same ultimate design. There is moral harmony, notwithstanding phenomenal contradiction. As one law of nature holds another in check, as one sphere of nature is superior to another—and the superior rules and controls the lower; and yet as all these collisions and conflicts conduce to the great purpose of God in establishing these laws and systems, so He who is supreme above them all may hold them all in check, when the design of all can be more effectually promoted by such an interference. There is no more confusion or jar in this omnipotent interposition of His own will in contradiction to nature, than when one part of nature thwarts and opposes another. In the sense, then, of disorder, as being a turning aside from the ultimate relation of things to the great First Cause, the miracle is not maintained. It is the highest order—the order of ethical harmony. It introduces no confusion in the universe. It rather lubricates the wheels of nature, and gives it a deeper significance. It breaks the apathy into which unbroken uniformity would otherwise lull the soul. The introduction of miracles into the moral system of the world is analogous in its effects to the introduction of chance upon so large a scale. The fortuities of nature keep us constantly reminded of God, and impress us with an habitual sense of dependence. We are compelled to recognize something more than law. The miracle, in the same way, brings God distinctly before us, and has a direct tendency to promote the great moral ends for which the sun shines, the rains descend, the grass grows, and all nature moves in her steady and majestic course. Miracles and nature join in the grand chorus to the supremacy and glory of God.

The true point of view, consequently, in which the miracle is to be considered is in its ethical relations. It is not to be tried by physical, but by moral probabilities; and if it can contribute to the furtherance of the ends for which man was made and nature ordained; if it can make nature herself more effective, we have the same reason to admit it, as to admit any other arrangement of benevolence and wisdom. We degrade ourselves, and we degrade our Creator, when we make the physical supreme; when we make the dead uniformity of matter more important than the life, and health, and vigour of the soul. This subject is very ably discussed by Dr. Wardlaw, and we close our argument upon it by a pregnant extract:

"Let me illustrate my meaning by a simple comparison—a comparison

taken from what is human, but, in the principle of it, bearing with infinitely greater force on our conclusion, when transferred to what is divine. A mechanician, let me suppose, has devised and completed a machine. Its structure in each of its parts, and in its entire complexity, is as perfect as human ingenuity and long-practised skill are capable of making it. All its movements are beautifully uniform. Its adaptation for its intended purpose is exquisite. So far as that purpose is concerned, it cannot be improved. It works to admiration. In such a case, the probability certainly is, that the maker will not think of introducing any change; seeing in a structure thus faultless every alteration would be for the worse. The machine, therefore, would be kept going on as at the first, to the continued satisfaction of the inventor and artificer, and the delight and wonder of all who have the opportunity of examining it. Thus far all is clear. But suppose now further, that circumstances should occur, in which the continuance of the regular movements of the said machine exposed a human life to danger; and that, by simply stopping or changing one of those movements for but a few seconds, that life could be saved; and yet more, that it is in the power of the maker and owner, with perfect ease, to stop or to change that movement, and to do so, without in the slightest degree injuring his machine, or even at all interfering with and impeding the chief purpose of its construction: if, in these circumstances, we knew the maker and owner to be a man of unusual sensibility and benevolence, or even of no more than ordinary humanity, should we not feel it by far too feeble an expression to say that it was *likely* he would stop or change the movement? should we not think we insulted himself, and maligned his character, if we pronounced his doing so less than *certain?* If, merely because he was enamoured of the beauty and regularity of a mechanical motion, he were to refuse interference, and allow life to perish; what should we think of the man's heart, and what too of his head? Should we not look upon him with equal detestation for his cruelty, and contempt for his childish imbecility? setting him down at once as a heartless monster, and as a senseless fool? And if thus you would think of the fellowman who could act such a part, what is to be thought of the God, who, when a world's salvation was in the question—involving not the safety of a human life merely, or of hundreds and thousands of such lives, but the eternal wellbeing of millions of immortal souls—should allow that world to perish, for want of evidence of his willingness to save it, rather than allow the order of the material creation to be, in a single point, or for a single moment, interfered with? and that too, although not the slightest injury was, by such interference, to be done to the system? For surely by no one will it be held an injury, to be made subservient to a purpose incomparably transcending in importance any or all of those which, by its uninterrupted regularity, it is effecting.

"Excepting in one particular, the cases I have thus been comparing are closely analogous. The particular in which they differ is this: that in the case of the mechanician, the evil was not by him anticipated, nor, consequently, the need for his interference; whereas, in the case of the divine Creator and Ruler, all was in full anticipation; and the occasional deviations from the order of the physical creation entered as essentially into the allperfect plan of his moral administration, as the laws by which that order

was fixed entered into the constitution of the physical creation itself. But such a difference there necessarily is, between everything human and everything divine; between the purposes and plans of a creature who 'knoweth not what a day may bring forth,' and the purposes and plans of Him who 'knoweth the end from the beginning.' It evidently does not, in the least degree, affect the principle of the analogy, or invalidate the force of the conclusion deduced from it."

We cannot conclude these remarks without alluding to the fact that the researches of modern science are rapidly exploding the prejudices which pantheism, on the one hand, and a blind devotion to the supremacy of laws on the other, have created and upheld against all extraordinary interventions of God. The appearances of our globe are said to be utterly inexplicable upon any hypothesis which does not recognize the fact that the plan of creation was so framed from the beginning as to include, at successive periods, the direct agency of the Deity. The earth proclaims, from her hills and dales, her rocks, mountains, and caverns, that she was not originally made and placed in subjection to laws which themselves have subsequently brought her to her present posture. She has not developed herself into her present form, nor peopled herself with her present inhabitants. That science which, at its early dawn, was hailed as the handmaid of infidelity and skepticism, and which may yet have a controversy with the records of our faith, not entirely adjusted, has turned the whole strength of its resources against the fundamental principle of rationalism. It has broken the charm which our limited experience had made so powerful against miracles, and has presented the physical government of God in a light which positively turns analogy in favour of the supernatural. The geologist begins with miracles; every epoch in his science repeats the number, and the whole earth to his mind is vocal with the name. He finds their history wherever he turns, and he would as soon think of doubting the testimony of sense as the inference which the phenomena bear upon their face. Future generations will wonder that in the nineteenth century men gravely disputed whether God could interpose, in the direct exercise of His power, in the world He has made. The miracle, a century hence, will be made as credible as any common fact. Let the earth be explored; let its physical history be traced, and a mighty voice will come to us, from the tombs of its perished races, testifying, in a thousand instances, to the miraculous hand of God. Geology and the Bible must kiss and embrace each other, and this youngest daughter of science, will be found, like the eastern magi, bringing her votive offerings to the cradle of the Prince of peace. The earth can never turn traitor to its God, and its stones have already begun to cry out against those who attempted to extract from them a lesson of infidelity or atheism.

Art. VII.—NORTH AMERICAN ORNITHOLOGY.

Illustrations of the Birds of California, Texas, Oregon, British and Russian America. Intended to contain Descriptions and Figures of all North American Birds not given by former American Authors, and a General Synopsis of North American Ornithology. By John Cassin, Member of the Academy of Natural Sciences of Philadelphia, &c., &c. Philadelphia: J. B. Lippincott & Co. 1853–1856.

In noticing the appearance of the very elegant work of Mr. Cassin, published in numbers, and of which the first volume has now been completed, we propose to say something on the general subject of North American ornithology, including under the term only the regions lying north of the Gulf of Mexico, and of the Mexican territories. We will attempt a sketch of its progress, its present state, and of what remains to be done to render it complete.

Before the time of Alexander Wilson, the North American birds were so slightly known and so ill described, that the earlier writers on the subject are hardly ever consulted now, except in investigating the history of the science, and in tracing the names successively given to birds, so as to adopt for the purpose of scientific nomenclature, according to established rules, the specific name imposed by the naturalist who first published a description of each species. In these earlier authors, descriptions were generally given from the dried skins of birds, not from the living birds or from specimens recently killed; and commonly by describers who never set foot on the American continent, and never saw the birds in their native haunts, nor even as captives in cages. The natural consequence was innumerable errors. Often, several distinct species were confounded together. Still more frequently, numerous species were made out of a single one, from want of acquaintance with the changes of plumage, by which the old and the young, the males and the females, of the same species, often present the most striking diversity of colours, and the garb of winter varies entirely from that of summer. Accordingly, it is common to find in the various authors of the time alluded to, five or six, or more, specific names given to the same bird in different states of plumage, referring it very likely to two or three different genera. In this slight sketch, we shall not stop to enumerate instances, nor shall we dwell at any length on these earlier writers. Pennant, Latham, Edwards, Catesby, Bartram, and others, deserve honour for their zeal in the pursuit of a liberal and elegant study; their failures belong mostly to the age in which they lived; great obstacles existed to the attainment of more perfect knowledge in this

branch of natural history; and few or none of these naturalists were gifted with that rare originality which was requisite for striking out a new road, and for proceeding by new modes of observation to a greater accuracy and precision in determining species, as well as to a fuller and more perfect knowledge of the habits and manners of birds. Catesby, in design, came nearest to the mark; he repaired to the Carolinas and the Bahama islands, to observe and to figure on the spot the objects of his study, including quadrupeds, reptiles, fishes, and plants, as well as birds; but his execution fell far short of his design; and although, by the aid of his large coloured figures, many of our common birds may be recognized; yet the beginner in ornithology, who should undertake the study, furnished with Catesby's magnificent folios, with Pennant's quartos, and with all the books on the subject which appeared before Wilson's time, including the brief systematic descriptions of Linnæus, (most admirable as these are, considering the materials and means at his disposal)—would encounter the same endless difficulties and perplexities which met Alexander Wilson, when he wished, with the aid of books, to make himself acquainted with the feathered tribes of his new country; and which fortunately led him to devote himself to the task of doing what no one before him had done—composing an accurate account of the birds of the United States, and painting their figures with fidelity, so that the originals might be easily recognized.

Wilson was a man of true genius and true enthusiasm. Difficulties and obstacles before which men of ordinary mould would have given up in despair, yielded to his determined will, energy, and perseverance. A foreigner, poor and obscure, he undertook to publish, by subscription, in a new country, fresh under the axe and the plough, an elegant and expensive work of natural history; a work of luxury, such as in the combination of splendour and fidelity to nature, had not then an equal among the most costly publications of Europe; unless it might be in the ornithological works of Le Vaillant, a naturalist of originality and enterprise like Wilson, but who, aided by the resources of a private fortune, commenced at ease the publication of his splendid volumes, a few years before Wilson began his work, under different and very adverse circumstances. The solitary pursuit, observation, and painting of the birds, though attended with toil, hardship, and frequent dangers, were the pleasant part of Wilson's labour: of an imaginative and poetical temperament, the woods and the fields, the seashore and the romantic solitudes of the mountains, were his delight; and the necessity of learning to draw and paint after he had formed his design, was no obstacle to him; the painful and repulsive part of his labour lay in the struggle for the means of accomplishing the publication of his costly volumes: a proud and sensitive man, he bore with fortitude all the mortifications incident

to such a struggle with poverty; and having found a publisher, liberal and enterprizing enough to try the venture, and an engraver, worthily to prepare his plates; and having succeeded in the difficult task of soliciting a sufficient number of subscribers to defray the expenses of so costly a work; he provided by extra toil, taken from the hours of rest and sleep, the scanty means for his own support; living at one time upon the compensation for the mechanical toil of colouring the plates for his work. Of the subscribers, between four and five hundred in number, it may be mentioned that a large proportion were from South Carolina; and the South Carolina College, founded when Wilson was preparing to publish his first volume, took one copy of the work, which is still in the library, but has become so much injured by frequent use and the loss of many of the plates, that it is to be wished that another copy of the original edition, in a better state of preservation, could be procured and placed there.

With Wilson began the accurate knowledge of the birds of North America. He knew and proposed to figure and describe about three hundred species. Too much labour and anxiety caused his premature death, before he had completed his task, and the ninth and last volume of the work was left to be published by his friend, Mr. Ord, the present venerable president of the Academy of Natural Sciences of Philadelphia. Almost all the common birds found from the Atlantic coast to the Mississippi river, and from the great lakes to the confines of Florida, are so well figured and described in Wilson's work, that they cannot be mistaken. Some also are introduced, which were discovered by the travellers, Lewis and Clarke, in their adventurous expedition across the continent to the shores of the Pacific, exploring the wilderness of the Louisiana territory, then just acquired by the treaty with France. And of the rarer birds, which, from their small number, unfrequent visits, secluded habits, or diminutive size, escape from common observation, Wilson accurately depicted the most that can be found in the Atlantic States, or in what was then the western country—the region between the Alleghanies and the Mississippi. He corrected very many errors of former naturalists, distinguished species which had been confounded with each other, or with European or other distant species, not existing in North America; and in very many instances, showed how his predecessors had fancied several species, and invented several names for the different states of plumage of a single species. After the appearance of Wilson's Ornithology, the student of natural history residing on the Delaware or the Hudson, the Chesapeake or the Santee, had access to a much better account of the birds of that wide region, than at that time existed of the birds of England, or of any country of Europe.

From the nature of the subject, it was unavoidable that Wilson

should fall into some errors, as to the distinctions of species and the habits of birds. But his clearness of perception and sagacity were such, that those errors are comparatively few; and Wilson has the honour of having left a work of permanent authority, and of having, in company with Le Vaillant (though, probably, neither of those naturalists may ever have seen the works of the other), set the example of a new mode of treating ornithology, far more accurate and less imperfect than anything which had preceded their time.

The appearance of Wilson's Ornithology naturally rendered the study more attractive in the United States, and the number of amateurs and of writers has since greatly increased. Wilson's last volume (that prepared for the press by Mr. Ord) came out in 1814. Soon after, the Academy of Natural Sciences of Philadelphia was formed, and the Journal of the Academy, published from time to time, contained many papers on ornithology. In a few years, Charles Lucien Bonaparte, Prince of Musignano, since, on the death of his father, entitled Prince of Canino, published, as an unfinished supplement to Wilson's work, four handsome volumes, containing some birds, such as the wild turkey, which the death of Wilson prevented from being included in his work; others, mostly of rare occurrence, discovered since his death; and more, from the confines of Canada, from Florida, and from the great Western Wilderness and the Rocky Mountains—regions to which Wilson's researches did not extend. Bonaparte also corrected some errors as to species; but perhaps his principal service was in elucidating the nomenclature of the earlier writers—a task requiring diligence, judgment, and ample means of access to many expensive books, as well as to collections of birds. All these Bonaparte possessed; and therefore his supplement to Wilson, and his papers published in the journals of scientific societies, have been valuable. He has the merit, also, of having first taken Audubon by the hand, and encouraged him to undertake the publication of his great work.

Audubon, very different from Wilson in many respects, was another rare and original character. With longer experience of the woods, and more favourable opportunities of observation, from varied residence in widely distant regions, he knew more birds; and, superior to Wilson as an artist, he painted them still better. Not equal to Wilson in genius, he did not write so well; but there is a geniality, a warmth, a vivacity, and a certain amiable simplicity about him, which render his style very captivating. In love of birds, in enthusiasm, and in energy and perseverance, he was Wilson's equal. His plates, on a much more magnificent scale than Wilson's, were far more costly, and required the most influential patronage in England, in addition to all the subscriptions of wealthy citizens and public libraries which could be

obtained in the United States, to be brought to a successful conclusion. The entire number of subscribers to his large work was about two hundred and eighty, the majority being in England; but the greater part of his English subscribers withdrew their subscriptions before the end of the work, because Audubon, receiving large accessions of birds, collected by Dr. Townsend in his journey across the Rocky Mountains, was tempted, with the true zeal of an enthusiastic naturalist, to publish a greater number of plates than the four hundred originally stipulated for. His octavo or miniature edition, afterwards published, and costing about as much as the subscription price of Wilson's nine volumes, had about twelve hundred subscribers, mostly in the United States.

Audubon has figured and described about five hundred species of birds. This is a much larger number than those known to Wilson as inhabiting the United States. But it is by no means to be supposed that all these additional birds are to be found within the territory to which Wilson's researches extended. On the contrary, the greater part of them are only to be found beyond Wilson's limits, either in British and Arctic America, or in the regions beyond the Mississippi, so slightly explored in the time of Wilson; or towards the Tropic of Cancer, in Texas, Florida, and the Florida Keys; in which last, that is, Florida and the Keys, many West Indian birds are at times to be met with. Still, Audubon discovered birds unknown to Wilson, in the old limits of the United States, as other observers have discovered within the same limits birds unknown to Audubon. And this is not surprising; and until the whole expanse of the country is thickly settled, and has been long ransacked by naturalists, the same thing may be expected to occur. Audubon also corrected some errors of Wilson; but with all his vast knowledge of birds, and long familiarity with them, such is the difficulty of discriminating with certainty between the numerous and closely resembling species, that he fell into some errors himself; the most, perhaps, of which, aided by the judgment and great attainments as a scientific naturalist, of his friend, Dr. Bachman, he afterwards recognized, and corrected in his second or octavo edition.

Contemporary with, and since the publication of Audubon's ornithological works, there have appeared a good many books, and very numerous articles in the Journals or Transactions of Natural History Societies, adding more or less to the knowledge of North American birds. Among the books, the volume in Richardson's Fauna Boreali-Americana which treats of birds, deserves a distinguished place, combining as it does, the somewhat diverse merits of Sir John Richardson's accurate field observations, and Mr. Swainson's ingenious and fanciful speculations concerning the quinary system. The latest publication of note, is that referred to at the head of this article, by Mr. Cassin, lately, if not still, Cor-

responding Secretary of the Academy of Natural Sciences of Philadelphia, and a naturalist of great diligence and acquirements. This work, when completed according to the design of the author, will serve as a supplement to Audubon, being in the same form as his octavo edition. It is to include in all, about a hundred and fifty species, chiefly from California, New Mexico, and Texas, distributed in three volumes, of which only the first has yet appeared. It is also intended to embrace a synopsis, or systematic list, of all the North American birds, corrected according to the most recent discoveries and conclusions of naturalists. It is much to be regretted, that the multiplicity of Mr. Cassin's scientific avocations, prevents him from proceeding to the early completion of this work; and that the appearance of the second and third volumes is postponed to an indefinite, if not a distant period.

The hundred and fifty species described, or to be described, by Mr. Cassin, added to the five hundred described by Audubon, make about six hundred and fifty species, inhabiting or visiting the great zoological region indicated above as the North American. This number will no doubt be somewhat diminished, when a more perfect knowledge has enabled naturalists to discard some nominal species; on the other hand, it will doubtless be greatly increased by the addition of many new species, to be discovered in the vast tracts of country to the west and northwest of the Mississippi, as yet imperfectly explored in a zoological sense.

Let us, then, consider how much is now known of these six hundred and fifty species of birds.

The first and most obvious subjects of inquiry are, the distinction of species, and their recognition under different states of plumage, which may be said to constitute the elementary information for the student of ornithology; for, unless he can tell of what species the bird before him is, all observation of its actions and habits, as an isolated individual, is unsatisfactory, as being incapable of leading to general results.

Most, then, of the species above enumerated, may now be regarded as pretty well ascertained and established; and the changes of plumage in all the more common birds are pretty well known.

The objects of most lively interest to students of ornithology generally, are the habits and manners of birds; the places which they frequent; their greatly varying dispositions and characters; their notes, especially of the musical kinds, and their modes of building their nests, and rearing and protecting their young amidst the perils which beset them on every side.

As to all these matters, so far as regards the more common species in the settled parts of the country, it may be said that pretty full information is now to be obtained from books; with which, as guides, the student, by referring the limited number of facts

occurring under his own eye to the larger body of previous observations, may readily master what is already known, and add his contribution to the general stock when he observes anything new.

The ornithology of one region cannot be made perfect, until it has been accurately compared with that of all the other great zoological regions of the globe. This degree of perfection is necessarily very distant. But it is the object to be aimed at until it is ultimately reached. The materials now exist for a pretty full comparison of the birds of North America with those of Europe; and for partial comparison between the birds of these two regions, and of such of the other great zoological regions as have hitherto been best explored. And in this branch of the science, the naturalist, ascending from the details which, in the opinion of some persons, would not at most rank higher than a liberal amusement, has to treat problems of high philosophical interest. The term "zoological region," employed above, is expressive of one of the striking results to which the investigations of naturalists have unexpectedly led. Not only are some animals which exist in some parts of the world, entirely absent in other countries—a fact which was obvious to common observation from the earliest times—but certain laws are found to regulate this difference of animals in different parts of the globe; and the earth is found to be divided into various great regions, each of which is inhabited by groups of animals of the different orders, peculiar to that region, and not found elsewhere. Generic resemblances are found; but the species are distinct. Diversity of species in different zoological regions is the general law. Identity of species is the exception. The same law is found to prevail in the vegetable kingdom. And by the side of this law of the diversity of species, is found another, equally remarkable, which may be called that of the parallelism, or representation of species, in different zoological regions. That is, while the same species are not found existing in two or more of these regions, species of the same genera are found, so closely corresponding with each other, as often only to be distinguished by nice scrutiny. And this occurs, not in rare instances, so that it might be regarded as accidental, but repeatedly, and with a degree of uniformity which proves the existence of a general law.

That part of the new world lying north of the northern tropic, is found to constitute one of these great zoological regions; and therefore the term North American, as applied to it, is made to exclude the West Indies and Mexico. Europe, Northern Africa, and Western Asia, constitute another of these regions. A comparison of the birds of the two, shews that very few species are common to both, except some migratory birds, mostly waterfowl, which breed in high arctic latitudes, and which, from this circumstance, form a connection between the two regions. Nor is this

inconsistent with the general law of diversity of species, briefly stated above; for it is found that the different zoological regions are not marked by abrupt transitions at their common bounds; but the passage from one to another at their points of contact is by gradual changes, leading not the less, however, to entire ultimate diversity.

On a comparison of the birds of the North American region with those of South America, as far as the latter are known, the general rule of the diversity of species, stated above, is found to hold good; for very few birds are known to exist in both regions, though many belonging to each are common to the adjoining portions of the intermediate tropical zone.

The present state of ornithological knowledge renders it easy to correct those popular errors, originating with the early European settlers, who gave the names of birds familiar to them in the old country, to species more or less similar, but entirely distinct, and sometimes indeed having very little resemblance, which they met with on the new continent. No one having the slightest instruction in natural history is now in danger of supposing, because a bird, a beast, a fish, or an insect is called in the United States by the same popular name with an English species, that it is therefore the same species.

Of all the particulars requisite to complete the history of the North American birds, perhaps their migrations are most imperfectly known. Certain general observations have indeed been made; and it is known that a great migration takes place from the south in the spring, of the vast family of the warblers, and of those of the swallows and the goatsuckers, and of many other birds, which spend the summer and rear their young in the United States, or still further north, and on the approach of winter retire southwards again. So it is known that in autumn a great migration takes place from the north, of various tribes of the finches, the ducks, the geese, and other birds, which, having bred and reared their young in northern latitudes, seek a milder climate in the United States, or further south, during winter, and until the approach of summer recalls them to their native regions. But whence each species comes, and whither it resorts on leaving us, especially with regard to the winter retreats of our summer visitants, is but little known. And still less are the causes which impel these wonderful migrations, and the modes in which they are conducted, understood with any degree of certainty.

After this brief view of its present state, let us consider what remains to be ascertained to complete the ornithology of North America.

In the first place, various questions are yet to be settled, concerning the identity or diversity of species, whether occurring in different parts of the North American region, or in this and some

foreign region. These questions may long afford occupation for naturalists, until minute and accurate observations shall at length have removed all doubt. Among the many curious problems yet to be solved, may be mentioned that concerning Audubon's magnificent, but very rare, bird of Washington; which, though regarded by him as a well marked and distinct species, has been received with great doubt by many other naturalists. Among many other instances, may be mentioned, the greatfooted hawk of North America, and the peregrine falcon of Europe; and the barn swallow of North America, and the chimney or house-swallow of Europe: are they the same, or different species? High ornithological authorities differ, and the questions are not finally decided. If the species are distinct, these birds present very striking examples of that parallelism, or representation of species in different regions, which has been adverted to above.

The subject of the migrations of the birds of North America, is that which most requires elucidation, and offers the highest rewards to well-directed study. The birds which only spend the summer months in this region and retire beyond its southern limits in winter, are of innumerable multitudes. In the summer, they are spread over the face of a territory of about five millions of square miles in extent. No satisfactory evidence has yet been obtained, that any of them repair to South America as their winter retreat. And yet the intermediate region of tropical Mexico, Central America, and the West Indies, presenting altogether a surface of only about five hundred thousand square miles, appears too narrow a space to receive the multitudes from a territory so much more extensive. Nor have any satisfactory observations yet been made, to show where, within these intermediate limits, the various migrating tribes pass or sojourn in the winter.

And how do they cross the sea? That birds should make long migrations over land, from north to south, or in the opposite direction, may seem not difficult to be accounted for, when once the impulse has been given, and the journey commenced. Whether it be to escape from increasing heat or cold; or to seek more abundant food; or, under the periodical excitement of certain organs of the brain, producing a disposition to travel towards or from the sun: when once the bird has started on a journey over land, the continuance of the journey, from day to day, or night after night, seems to involve no great difficulty. But when the bird arrives where the waves break on the seashore, with nothing but a vast horizon of water before it, what cause impels it to venture on a flight for distant lands, or directs it in such a manner that it shall reach those lands, and not follow some interminable line of watery waste, until it sinks exhausted from its flight? With regard to those birds which pursue a western track, carrying them to the west of the Gulf of Mexico, this difficulty does not

arise. But the observations of Audubon, and other naturalists, show, that on the eastern side of the continent, vast multitudes of birds do pursue their migrations through the peninsula of Florida. Now, on arriving in their southward migration at the southern extremity of Florida, they find a channel two degrees of latitude in width, intercepting their course to the northern shore of Cuba. Some small islands, or keys, are scattered between. And in another direction, from the eastern coast of Florida, the island of Great Bahama is only about half as far as Cuba from Cape Sable. But whatever course a bird might take from the southern part of Florida to reach the island of Cuba, it would unavoidably have to pass over some seventy miles of open sea, without an islet or a rock on the surface. Now, to be able to discern a low islet seventy miles off, a bird would have to be elevated in the air to the height of more than three-fifths of a mile; and to be able to discern a low coast, at the distance of one hundred and forty miles, which is about the width of the Florida channel between Cape Sable and Cuba, the bird would have to be raised to the height of about two miles and a half. The highlands and mountains of the interior of Cuba, would be visible from a less height: our calculations are rough ones, and we have not at hand the data for estimating the height of the profile presented by the central ridge of Cuba, opposite Cape Sable, and are unable, therefore, to calculate the elevation above Cape Sable from which that ridge would be visible: but the lesser height mentioned above, three-fifths of a mile, seems to be a very great one for many warblers, and other birds of feeble flight: and besides, from Audubon's actual observations, it appears that some of the pigeons which pass in summer from Cuba to the Florida Keys, arrive with a very low flight, little above the surface of the waves. Audubon also states the conviction, as the result of his observations, that many birds of passage, instead of following the great indentation of the coast, cross direct over the open sea between the southern part of the peninsula of Florida and Cape Hatteras. Now this flight, if pursued in a straight line, would measure five hundred and fifty or six hundred miles; and would, at the furthest point, depart from the land one hundred and fifty miles. These considerations render it extremely doubtful, whether birds, in their migrations over the sea, can be guided by the sight of land beyond. But are we to rest satisfied with referring these wonderful phenomena to instinct? This is neither satisfactory nor philosophical, until thorough and scientific investigations shall have failed to discover any intermediate agencies through which the Creator regulates the actions of this part of His animated creation. In reference to the actions of animals, instinct is commonly the solution of ignorance. The further scientific researches are prosecuted, the more limited becomes the resort to this convenient formula for concealing the want of knowledge.

A number of observers, posted at suitable points, some on the coasts of Florida and the Keys, some in the West Indies, some round the shores of the Gulf of Mexico, others across the Mexican territory to the Pacific, some in Central America, and others again on the northern coast of South America; acting in concert, and communicating by correspondence or publication; would be able to track each species to its peculiar places of resort, to complete the account of its habits, and in all probability to solve the now mysterious enigma of migration, and to explain by simple, natural processes, all that at present seems unaccountable and incomprehensible.

And such observers would be able also to solve various existing problems concerning the identity or diversity of species found in North and in South America. For instance, conspicuous and common as are the turkey buzzard, and the carrion crow or black vulture, in the Southern States; and equally conspicuous and common as are similar birds in the West Indies, and in South America as far as Chili and Buenos Ayres, there is a doubt as to the identity of the species of the different regions. If found, as seems most likely, to be the same throughout the continent, these two birds will exhibit an uncommon instance of extensive distribution.

As another instance, De Azara, a Spanish naturalist, who has written a history of the birds of Paraguay and La Plata, rivalling in accuracy of observation the works of Wilson and Audubon, though incomplete from the want of good figures or correct technical descriptions, gives a very interesting account of a species of swallow, which roosts in great companies at night in the hollows of great trees, just like the chimney swallow of the United States, as described by Audubon and Wilson. De Azara's account of the habits of his South American bird, will apply fully to that of North America. Is it but one species? or are these birds different and representative species?

The internal migrations of birds within the North American region—that is, from one part of the region to another, and often not a remote one—are not by any means either fully known at present, or to be neglected by observers desiring to complete the science. The further study of these more limited migrations, attended with less difficulty than that of the more remote ones of which we have chiefly spoken, will throw much light upon those. And there are many points of interests to be investigated, to which in this brief sketch we shall barely allude; such as the length of daily or nightly journeys, whether in spring or in autumn; the number of individuals travelling in company; the separation often observed between the young and the old, and between the two sexes; and many other particulars.

Elevating his views, and advancing to loftier speculations, the ornithologist may in time to come take part in solving graver

problems. Some writers of the present day, of very high reputation, arguing from the ascertained facts of the diversity of zoological and botanical regions, have supposed that in each of those regions there existed a separate centre of creation; and that plants and animals first appeared, not at one time, and in one quarter from which they were afterwards disseminated over the rest of the globe, but at different periods, in the respective regions to which they were adapted, and within which, with comparatively few exceptions, they remain confined. Some writers again, considering the long series of extinct animals and plants, whose former existence is revealed by their fossil remains or their traces in the rocks, and the geological periods of incalculable length during which they appeared on the earth and passed away, have concluded that the former changes of the earth and of its inhabitants have not been abrupt or sudden, but very gradual, and that geological changes of the same kind are now going on, sufficient, after the lapse of unnumbered ages, to produce as mighty revolutions in the surface of the globe, as those which have taken place heretofore. And these writers have hazarded the speculation, that the creation of animals and plants may not be ended; but that as at intervals of great length, species become extinct, others may arise, until by gradual change, in process of countless time, a new fauna and a new flora may replace those now existing. The only satisfactory mode of dealing with such problems, is by the scientific observation of facts. And here the observation of birds presents decided advantages over that of other animals, or of plants. Plants are too numerous. It seems hardly possible to acquire such a knowledge of all that exist, as to be able to pronounce that any one occurring to observation as new, did not exist before, escaping notice. Quadrupeds are too few. Reptiles, fishes, insects, and the lower orders of animals, are either too numerous, or too difficult of pursuit and observation. The number of birds, though large, is within bounds; their nature and habits render them conspicuous; and when the ornithology of the whole world shall be brought to a state of completeness somewhat exceeding what has now been attained for England and a part of the United States, it may not be extravagant to suppose, that no conspicuous existing species could have escaped notice; and that the occurrence from time to time of such species, new to naturalists, might be proof of fresh creations.

A notable instance of the extinction, within modern times, of a large and remarkable bird, has already occurred in the case of the dodo. The great bustard, a bird larger than the wild turkey, has lately either become extinct in England, or is on the point of becoming so; and its entire extinction in the European region may be regarded as likely to occur at no very distant period. It may well be that many small and obscure species of birds have even in times quite modern, disappeared from the earth without

notice. Ornithological science has heretofore been too incomplete to mark their existence or their disappearance; and it is yet far, very far, from that degree of completeness which is requisite for such a purpose. But if ever the highly interesting, and, as many may regard it, audacious problem, proposed by the writers to whom we have alluded, is to be satisfactorily decided, either in the affirmative or in the negative, the birds seem to offer the most favourable opportunities for attaining that end.

And, in considering matters of this kind, the connection of ornithology with geology, palæontology, and ethnology, as well as with all the branches of zoology, becomes apparent; as indeed, all the sciences, in their higher aspect, are connected together, and the progress of any one tends more or less directly to the advancement of all the others.

To return to the consideration of that progress which is still to be desired in the ornithology of North America. There remain two important objects to be achieved, not peculiar to the naturalists of this region, but of general interest. These are the discovery of the true natural system, or plan of creation, if it is within the attainment of human faculties; and the adoption of a nomenclature, as convenient and as nearly perfect as it can be made.

All the systems hitherto devised to exhibit the order of animated nature, the series of beings, and the plan upon which they are formed and connected with each other, are imperfect. Ingenious attempts have been made, in what are called the binary and quinary systems, to shew a fixed order of arrangement, and correspondences, prevailing throughout the animal kingdom, and so far discovering the plan of creation; but as yet, these theories rest too much on vague and fanciful analogies, and too little on strict induction from facts, to command assent. But the possibility of succeeding in this high speculation, and of discovering finally the laws by which it has pleased the Creator to regulate the existence and relations of all terrestrial beings, is not to be lightly abandoned; and the prosecution of this research affords ample scope for the highest powers of genius.

Ornithological nomenclature is at present in a state of confusion. The Latin language is, on many accounts, the best that can be used for the purpose; and if it were not the best, it could hardly at this time be changed to advantage. Certain rules have now been very generally recognized and adopted, which will ultimately result in rendering uniform and fixed the specific name of every bird. But generic terms are, to the utmost degree, unsettled. As many specific names as the imperfect information of earlier naturalists applied often to a single species; so many, or more, of generic names have, by the conflicting systems of naturalists of the present day, wandering without a guide, been heaped in utter

confusion upon the same groups of birds, variously divided and subdivided at the caprice of writers. Many of these names, in addition to all other demerits, being contrived from Greek elements, are extravagantly distorted and barbarized. What Greek scholar, were he endowed with the gifts of Œdipus himself, could guess the meaning of "Chordeiles," a word framed as a generic appellation for the night-hawk; unless he were informed by the inventor of the name, Mr. Swainson, that it is from "χορδὴ δείλης," the chord of evening; "in allusion to the peculiar sound it makes?" And this is but one specimen of a great multitude of offences against language, which have been committed in the concoction of generic names. And the mania of subdividing genera has now gone to a most inconvenient excess. With some modern systematists, there are almost as many genera or subgenera as species. A simple and well-settled nomenclature is of the highest service, in aiding the acquisition and the retention of knowledge. To have devised such a nomenclature in his day, was the highest merit of Linnæus. That nomenclature is not sufficiently full or correct for the present state of knowledge in natural history. It has, however, furnished the basis for all later systems. It is much to be desired that a reform should now be made by some great and authoritative naturalist.

We have thus endeavoured, though in a manner too brief and imperfect, to show, that with all the progress which has been made in North American ornithology, much more remains to be done than what has yet been accomplished, to render it complete; and that this field of science presents not merely liberal occupation for an elegant taste, but opportunity for achievements worthy of the highest capacity.

Art. VIII.—THE CRUSADES.

Histoire des Croisades, par M. Michaud: *Avec un Appendice, par* M. Huillard-Breholles. 2e édition. 4 volumes, 8vo. Paris, 1854.

It is not our design to attempt an analysis, or even a critical estimate of the splendid volumes named at the head of this article. Their author's industry in historical research may be inferred from the massive contribution which, in connection with M. Poujoulat, he has made to the history of France, consisting of thirty-four large volumes, and embracing the period from the thirteenth to the close

of the eighteenth century. He was born in 1767—passed through the stormy period of the Revolution—saw three kings upon the throne of France, and died in 1839. His History of the Crusades introduced him to the French Academy, and to the Academy of Inscriptions and Belles Lettres. We shall use his name, or rather the title of his book, to introduce some reflections of our own.

Of all those great subjects concerning which historians and philosophers disagree, the crusades have called out the most contradictory opinions; some regarding them as mere ebullitions of fanaticism, extravagance, and iniquity, and productive of unmitigated evil upon their own and succeeding ages; others, again, make them the subject of constant panegyric, regard them as the result of the loftiest sentiments, and most beneficial in their ultimate effects. We confess that there is no historical subject more perplexing than this, and on which our own mind has passed through more changes. At one time, they appeared to us in a purely chivalrous and romantic aspect, and we delighted in the perusal of heroic deeds, without much consideration of their moral effects. Then, again, when, in common with the quietness of the people in this country, we had more faith in peace societies and various philanthropic principles than we at present entertain, we looked upon the crusades with abhorrence, as in direct opposition to the pacific principles of Christianity. At present, we are constrained to take a still different view of them, as originating in broad and enlarged statesmanship, aiming to rescue Europe from the waves of Mahometan conquest, and resulting in the emancipation of society from the hard yoke of feudal nobles. But this was not the only principle which originated those destructive wars: there was also a poetic and religious veneration for the most sacred places on the earth, that they might be rescued from infidel desecration; and therefore they were encouraged by saints as well as statesmen, who, uniting together, raised such a storm of enthusiasm as has never been paralleled in Christendom. The crusades lasted for two centuries. They were the only common enterprise in which Europe ever engaged; nor did they end until more blood was shed, and more treasure lavished than in any wars in the history of society.

In view of this acknowledged fact, it must have been no common feeling, no transient fear, no ordinary sentiment which could have united semibarbarians for so long a time. Or is it probable that the most distinguished statesmen, and the most eminent Christian saints of the middle ages, whose piety has become a proverb, meek, mild, and submissive—would have systematically encouraged expeditions of such magnitude and devotion, and in view of all their calamities, except for some great and noble end? But that end was secular as well as spiritual, and the leaders of the movement, in order to accomplish it, appealed doubtless to

the passions of the people, as calm and worldly politicians still do, when they have a great point to carry. Who can believe that the distinguished statesmen in our own country, who headed the campaign for the election of General Harrison, were ever intoxicated and transported in view of his military success and political genius? or were much affected by the speeches, and the processions, and the songs which marked that temporary reaction against the policy of more democratic rulers?

When Peter the Hermit, and Bernard the Saint, and Urban the Pope, announced to the breathless crowds who hung upon their enraptured voices, that the Lord had need of them, to deliver his holy sepulchre, they were only giving expression to those sentiments and fears, (as Sir James Stephens has so forcibly remarked, and other still greater historians confirmed,) which had agitated Christianity for the six preceding centuries.

The Mahometans had robbed and persecuted those pious pilgrims who, according to the sentiments of that age, had visited Palestine for the forgiveness of their sins. Ever since St. Helena had built a church at Jerusalem, it had been frequented by the penitent and the religious from all corners of the west. It was the most sacred spot on earth. If a man, however depraved or wretched, could reach that spot, his sins would be forgiven, according to those notions of self-expiation which ever have led astray the Roman Catholic Church. A pilgrimage to old Jerusalem would open the gates of that new Jerusalem whose streets were of gold and whose palaces were of pearls. The village pastor in Germany, in France, and in England, delivered the staff into the hands of the pilgrim, girded him with a scarf, and attached to it a leathern scrip. Friends and neighbours accompanied him a little way on his toilsome journey, loaded him with benedictions, and bedewed him with tears.

And those who took the cross were not the mean, and degraded, and plebeian, and unfortunate. They were generals, nobles, of aristocratic connection, and haughty pride, who sought to atone for the sins of a life of violence and rapine. The church enjoined the penance, and her sons were not disobedient; moreover, at the latter part of the tenth century, there was a general impression that the end of the world was at hand. The calamities, and violence, and crime, and rudeness, and misery which afflicted society during the Merovingian and Carlovingian dynasties had made all classes weary of life. There was no security, no law, no order, no peace. The only retreat from robbery and murder was the sacred monastery founded by some venerable saint, and enriched by the contribution of some barbarous princes. During this age, monasteries greatly increased, and the monks, terrified, awe-stricken, and dejected by the universal miseries they beheld, predicted the judgments of Almighty God, and were believed. At that time,

therefore, there was an unusual number who sought the holy sepulchre, that, pardoned and sanctified, they might survive the wreck of matter and the crash of worlds; all were anxious to take the cross, and they parted with their money and estates for the benedictions of the priests. They journeyed fifteen hundred miles on foot, in rags, in poverty, and in constant danger, to save their souls. They obviously preferred the future to the present; and the effect of their example was tremendous. A new religious awakening took place in Europe. Religious sentiments were the dominant principles of society, in contrast with violence, and rapine, and ignorance. Then arose the mighty and majestic cathedrals in every great city in Europe—the monuments of christian zeal, as well as the evidences of increasing culture. Theology was the chief of the sciences; Christian architecture was the highest of the arts; pilgrimages were the consummation of piety. No wonder that so many took the cross. But they perished miserably with famine and disease. Not half of them lived to return; and even when they succeeded in reaching the sacred city, they were molested, ridiculed, and robbed. The cruel masters of Jerusalem exacted two pieces of gold from every pilgrim; and two pieces of gold were not so easily furnished, especially after the expense of their pilgrimage. The holy sepulchre could not be approached, except upon condition of defiling it, by bribing its Saracenic guardians. In addition, the pilgrim was subjected to stripes and wounds. Alas! after so many perils, should he not see the sepulchre of his Lord before he died? No wonder he was moved to indignation and revenge, as well as humiliation and grief, and he communicated his feelings to afflicted Europe. Each man stimulated the passions of his neighbour. Universal hatred of Mahometanism was excited throughout Christendom, deep, absorbing, deadly, inextinguishable. This was the popular feeling, the sentiment of the masses in the country, to which Peter and Bernard appealed—the material on which fanaticism was based, and without which their appeal had been in vain.

But hatred of the Mahometans because they defiled the holy sepulchre, was not the only cause of hostility. Great political as well as religious considerations swayed the leaders of Christendom. The Saracens, and then a still more barbarous people, the Turks, had overrun Asia and threatened Europe. They already cast greedy eyes upon Constantinople. The Greek empire was in danger of falling into their hands. It was the last barrier in Asia or Europe against Mahometanism. If that were broken down, then Christendom would be enslaved.

The Turks as well as Saracens aspired to universal dominion. They had conquered Asia;—should they now conquer Europe? The crusades arose, not merely to defend the sepulchre of Christ, but the altars and churches of Europe. The Christian

nations, debased as they were, valued their religious institutions; they were all animated by a common faith; the pope was the spiritual father of Christendom; his was the only central power; he was the protector of Christendom. Hence he uniformly encouraged the crusades; hence their universality. All the nations of Europe combined. It was the instinct of common danger; and unless they should combine, Constantinople would fall, and Europe be overrun. Unless offensive measures were pursued, defensive ones might be of no avail. Had the Moslem hordes in the eleventh century, taken Constantinople, instead of the fifteenth, then they might have erected a universal empire; at least so Europe feared. It was filled with fear and alarm as well as hatred. It was an instinct of self-preservation, as well as motives of religion, which urged Europe to embark in the crusades; and never were warriors animated by nobler, more disinterested, more gallant heroism than Godfrey, Tancred, and the earlier crusaders. They were urged on by all the lofty characters of the age. Saints, abbots, bishops, popes encouraged the enterprise, as a means of arresting or averting the storm. No one in Christendom deemed they were against the spirit of Christianity; no one's conscience troubled him, unless he staid at home. All would have felt a boiling, burning indignation, had cold water been thrown upon the enterprise. What would motives of prudence, or calculation, or material thrift have weighed with those ardent spirits, resolved to deliver the sepulchre of Christ, and also to put down a dangerous and infidel power? It was Europe against Asia, as well as Christianity against Mahometanism. All the motives of patritoism, of zeal to preserve religious institutions, of heroism, of martial ardour—all the sentiments of the age, marshaled the crusaders into a great, united, hostile array of physical forces. A man would have been calumniated, spurned, destroyed, had he deemed the enterprise as visionary. Ten thousand indignant spirits would have arisen; ten thousand swords would have leaped from their scabbards; ten thousand warriors would have exclaimed with phrenzy, "What! and shall we not rescue the sepulchre of our Lord? Shall those enemies of Christianity be permitted to do violence at his tomb? Shall those Philistines insult us and threaten us? shall they be permitted to take cities and kingdoms, until we are left to their tender mercies? Do we love our religion no better than to see it desecrated and destroyed? We will rescue the Holy Land; we will succour our ally the Greek emperor; we will destroy the enemy of God!"

Ridicule or denounce such sentiments, if you will, oh ye philanthropists of an age of natural progress; oh ye apostles of worldly thrift; oh ye plausible advocates of universal brotherhood which would embrace your deadliest enemies, and release prisoners and murderers from confinement; but remember, that the men

of the middle ages were too earnest for such refinements; were too impatient and impulsive to be thus influenced. Civilization produces timidity, and calls it prudence and wisdom; it takes care of its gold and silver; it seeks its good in luxury and display. But the Germanic nations were governed by more generous passions. They, though barbarians, were jealous of the honour of God. They valued their religion, and their sacred places were beyond treasures of silver and gold; and, therefore, they were easily united in an enterprise to preserve what they esteemed, not merely so valuable, but so sacred.

But, however complicated were the causes of the crusades, one fact is clear, that fanaticism had much to do with this martial expedition.

One man, more than any other, impersonated the ideas of Europe at this time, and this man was Peter of Amiens. He was the first to kindle the flame which should blaze to heaven. He was no prophet like Mahomet, no saint like St. Francis, no hero like Richard, no sage like Bernard, no legislator like Loyola, no reformer like Luther, but only an ignorant fanatic, who had intense passions, which were all concentrated on hatred of the Mahometans. His appearance was mean, his countenance austere, his beard neglected, his hair disordered, his stature small. But his eye was fiery, his voice was eloquent, and his conversation, his diet, and his principles were all after the ascetics of the Egyptian school—all such as spoke to the passions and prejudices of society. He had been a soldier, and became an anchorite. Like other men of his turn of mind, he resolved to make the pilgrimage, escaped the dangers, paid his two pieces of gold, and took up his lodgings in the sacred city. But he could not rest; moved by the miseries of the christians, he sought and obtained an audience with the patriarch, indignant like himself in view of the infidel yoke. Their conferences were affectionate and intimate. Peter unfolded his designs. I will rouse, says he, the martial nations of Europe in your cause. The desponding patriarch gave him his blessing, and Peter hastened to the court of Urban II. to fulfil his promise. The pontiff also listened, was moved, and gave him his hand. The pope and the hermit formed an alliance destined to shake Christendom, and produce results on the future destinies of Europe. How feeble the instrument: how great the effects produced by it. The hermit traversed France and Italy, preaching a crusade. The pope summoned a council to meet him at Placentia. It was adjourned to Clermont. Thither resorted counts, barons, and bishops. In the market place of the city—an open square—the pontiff, in his sacred robes, ascended the pulpit, and addressed the countless multitude. He told them their faith was trodden under foot, how Palestine was devastated, how the christians were insulted, how the precious relics were desecrated. He reminded

them of their duties; he appealed to their chivalry, to their devotion, to their hopes of future life. The multitude sobbed, and wept, and then filled the air with shouts. "It is the will of God," they cried; "we will hasten to the deliverance of the sacred city." Never was a sermon followed by such results. From one end of France and Italy to the other, there was preparation for the martial pilgrimage. The whole moral fabric of society was shaken. One universal passion seized the people of Europe; and this was to take the cross, and exterminate the enemies of God; to be both pilgrims and warriors. Those who held back at first, were soon drawn into the whirlpool of enthusiasm. Each man felt the passions of the hermit; each man stimulated the passions of his neighbour. The contagion spread from village to village, from city to city, from castle to castle. Men of all ranks and degrees sold their lands and houses, and bought horses and armour. For a trifle did husbandmen and artizans dispose of their now worthless tools. The red cross was seen on every shoulder. Men assumed it with the double purpose of having their sins forgiven, and of punishing the Saracens; and not the strong only, the brave, the rich, the pious, engaged in this enterprize; but the infirm, the weak, the miserable, the idle, the dissolute, the thoughtless, the fanatical—men, women, children; all orders, sexes, conditions flocked to the standard of an inexperienced monk. The devouring flame of fanaticism spared neither age, nor sex, nor rank, nor learning, nor beauty. So rapidly did the flame spread, that, in four months from the council of Clermont, six millions, it is said, assembled at the various places of rendezvous. They would not wait for the necessary preparations. First, twenty thousand foot and eight thousand horse set out under the standard of Walter the Penniless; and then forty thousand more under Peter himself—a most miserable mob, which soon swelled to two hundred thousand, and which rolled on, like a plague of locusts, devouring and destroying everything, through Bulgaria and Hungary. Of course, it was not by such a mob that the city could either be taken, or even reached. They perished most of them miserably by famine and fatigue; only twenty thousand reached even Constantinople, and these were betrayed by the artful emperor.

But this disorderly rabble were not the men on whom Christendom put its trust. The main body of crusaders was composed of the flower of the European chivalry. Behold it marshaled, at last, on the plains of Chalcedon! What modern array could equal it in brilliancy? There were one hundred and fifty thousand horsemen in shining armour, and floating banners, and waiving plumes, armed according to the fashion of the day in impenetrable steel, and five hundred thousand footmen, all alike inspired with all the enthusiasm which religion, and chivalry, and martial ardour could excite; full of hope, sanguine of success, resolved to exterminate

the enemies of God. And then, what leaders! There was Godfrey of Bouillon, prince of Lorrain, in whom the gentlest manners were united with the firm spirit, alike distinguished for personal bravery and political courage, so strong that he could, with one blow of his sword, sever a horseman from his head to the saddle; a hero, and yet a saint, fitted equally for a cloister or a throne, fervent in his piety, lofty in his aims, prudent in his counsels, and invincible with his arm.

Bohemond, too, was there, versatile, cunning, cautious, the Ulysses of the war, who could assume any character, and was equal to any enterprise. And there was the great Count of Vermandois,—Hugh, brother of the French king, whose virtues and graces were worthy of a royal race; not so religious as Godfrey, not so crafty as Bohemond, but sagacious, eloquent, brave. Raynard of Toulouse was there also; avaricious, proud, obstinate, envious, the lord of all the south of France, the richest prince of his times; but though jealous and ambitious, yet bold and able, dazzling and grand. Finally, among that constellation of princes, we see the favourite of Tasso, the illustrious Tancred; generous, frank, magnanimous, tall, strong, and beautiful, the mirror of European chivalry. What an array of great names, all devoted to the cause, all panting for glory, all shining amid their retainers with splendour, and burning with enthusiasm.

Constantinople was the city in which all the different bodies of crusaders agreed to meet. The wily Alexis had done all in his power to divert them from his capital. But in vain. The massive strength of the barbarians had broken through every snare. Division after division had arrived; and, like sailors after a long voyage, the crusaders, after their weary march, lost their balance in the capital of the Greeks. They were captivated by the beauty of the palaces, and the splendour of the churches, and the richness of the shops.

Is not this Jerusalem? they said to one another, as their eyes fell on the gilded dome of St. Sophia, the marble palace of the Cæsars, the antique sculpture, the rich merchandize, and gorgeous dresses of the people.

They were unused to such magnificence, and then they acted with strange and fitful caprice. They tore the lead from the roofs of churches, and killed the lions which Alexis had collected, by way of sport. Nor did they understand the etiquette of an eastern court. They sat down, uncovered, in the presence of the emperor. They spoke with rudeness and defiance to the dignitaries of the court. No wonder the timid Alexis wished them anywhere but in his capital, where they foolishly lingered, and where it required all the persuasion and authority of Godfrey to prevent many of the chieftains remaining.

At last they took their departure—very expensive and trouble-

some guests—and commenced their march to the holy city. But what battles had they to fight, what sufferings had they to endure, what mortification were they to receive before they should attain the end they sought! The death-struggle of races was to be made; Europe was to contend with Asia; Christendom was to be arrayed against Mahometanism; the new world against the old. To whom should victory incline? Ah, let not the millions who perished in that death struggle answer. Ask not the chroniclers who recorded the miseries and mistakes, the vicissitudes and the misfortunes of those whose bones whiten the soil of Asia Minor. Ask not the spirits of those few who returned to their homes, broken-spirited, crippled, impoverished, ruined. But look to their descendants, with renovated strength, with fresh impulse, with accumulated riches, with new sentiments, with new enjoyments, new experience, new energies. This is the way to contemplate the crusades.

But, then, how can we disregard the misfortunes of those brave people who left their homes, and disregarded their fortunes, that they might rescue the most sacred place on earth from infidel desecration? We cannot disregard them. Even their sufferings and mistakes have an interest, though it is melancholy; we learn lessons of moral wisdom from their disastrous contests.

We sketch, but do not pretend to describe, the fortunes of the crusaders. They should have directly advanced to Jerusalem. But Alexis cheated them; he pretended to be friendly, but, like a true modern Greek, he undermined. We hate the character of Alexis; so faithless, bad, selfish, perfidious. We hate all such characters, even if they do gain their ends; your double-dealing, crafty, insidious, sycophantic, plausible, hypocritical pretenders to friendship; we prefer their curses to their smiles. The barbarians were no match for the Greeks. The emperor induced them to lay siege to Nice, because he wanted to get possession of the city himself. Then they resolved to take Antioch. It is strange that they could have been diverted from their path. But, perhaps, it was necessary first to subdue that great eastern capital. At any rate they experienced difficulties of which they never dreamed, as is always the case in all military expeditions. The most sagacious generals sometimes make great mistakes. But no body of soldiers ever so greatly miscalculated as the crusaders; they did not dream of the difficulties of the march; they did not anticipate the perfidy of Alexis; they did not expect to find so much bravery among their enemies; they had not calculated on the difficulty of getting bread and forage for so large an army; they had not anticipated the perfidy of Alexis; they had not anticipated plague, pestilence, and famine; they were unprovided with necessaries for so long a journey. Nor did they believe that eastern cities were so well defended. What were feudal castles to the fortifications of Nice or Antioch? For seven months did they

waste away under the walls of the latter city before it surrendered. They were not strong enough to take it by storm. They had to wait the effect of a siege. They were molested by the troops of the enemy, who hung around their camp. They soon exhausted all the provisions and luxuries of that fine country. They themselves had to endure all the miseries of famine and of the plague. They suffered all that the besieged suffered. Great deeds of valour were indeed performed. But all the miseries of war existed: alternate hunger and excess, famine and debauchery, disease and death. Desertions multiplied. The army melted away, and when the city was at last taken, only twenty-five thousand out of three hundred thousand were able to continue the march to Jerusalem, and all the enormities of war in barbarous ages were inflicted on the unfortunate city. Ten thousand were slaughtered in a single night. The palaces of the rich and the dwellings of the poor, the mosques and the bazaars were abandoned to pillage, and converted into places of debauchery, cruelty, and murder. Sixty-nine thousand alone of crusaders, perished at the seige of Antioch. What a catastrophe! But this great number was not a tenth of those who had already fallen as victims to their mad fanaticism. The bones of eight hundred thousand warriors already whitened the plains of Asia Minor, before the shattered remnants of the army of Godfrey and Behomed reached the sacred city. It was strong in fortifications, and defended by forty thousand men, who were provided with all the requisites for a long and protracted siege. But the crusaders remembered Nice and Antioch. They resolved to take the city by assault; all their energies were directed to the construction of military engines and moveable towers; when these were completed, the trench was filled up, and they were rolled towards the walls. The whole army marched in procession around them, with naked feet, bearing the image of the cross, and excited to enthusiasm by their songs and psalms. The Saracens mocked their devotions, and defied their arms, and insulted them with showers of dirt. When all was ready, Godfrey's tower was rolled against the wall, and the catapults and battering rams commenced the work of demolition. The archers and slingers discharged their weapons with effect. The wall was soon deserted. The draw of the tower was lowered, and Godfrey himself planted the standard of the crucifix on the battlements of Jerusalem. Raymond of Toulouse entered the city simultaneously by the opposite wall, and Tancred by the gates. Soon the whole city was in possession of the victors, and the horrid massacre commenced. Ten thousand were slaughtered in the mosque of Omar, and six thousand more slain. Never was such a wholesale butchery. The heathen Alaric spared the churches of Rome, and all who fled to them for protection; the Christian Godfrey massacred both Mahometans and Jews. When the bloody work was done, and the city was

depopulated, then the bloody conquerors laid down their arms, washed their hands, put on the garments of humiliation, and, with tears and sobs, bareheaded and barefooted, walked to the places consecrated by the presence of Jesus; kissed the stone which had covered his remains, and bedewed it with tears of joy and penitence.

Their vow was now accomplished; their vengeance was gratified; their work was done; the holy sepulchre was delivered.

"But it is for God," says Michelet, "to rejoice over his work, and say it is good." Not so with man. When he has finished his work, when he has gained his end, when, at length, he has obtained the desired object, he ceases to know it; he lets it fall from his hands; he conceives a disgust both of it and of himself. Then he wishes no longer to live; all his efforts have failed to satisfy his soul. Thus Alexander died of sorrow when he had conquered Asia, and Alaric when he had taken Rome. No sooner could Godfrey of Bouillon call the Holy Land his own, than he sat down prostrate and discouraged, and longed to rest in its bosom. The men of the middle age felt sad when they had accomplished their adventurous enterprise, and had enjoyed the sight of the so much longed for Jerusalem. What had they gained, after all? When the full consequences of their expedition flashed upon their minds, how dejected must they have felt! How disproportioned, to all appearances, was the victory to the loss! Six hundred thousand men had started, bearing the cross; only ten thousand of them ever revisited Europe. They might be easily tracked through Hungary, the Greek empire, and Asia, by the bones which whitened the roads. Such mighty efforts to cease with such results! No wonder Godfrey, the new king of Jerusalem, languished and died.

Such was the first crusade—the most poetic and the most brilliant of all, though attended with disastrous results. The crusaders founded, however, a Latin kingdom at Jerusalem, and introduced the feudal system in all its severity and all its glory. After a while, the Mahometans rallied, and gradually regained their cities and their territories. Odessa was almost the only spot which remained, and even this fell. Fifty years had elapsed since the crusade was preached by Peter: a generation of men had passed away, but not their passions or their ideas; these were transmitted to their children. The Mahometans were still as hateful as ever; the desire still continued to avenge the sufferings of the Christians; and, especially now that Odessa had fallen, Europe was in consternation. Fear was now added to despondency. In an agony of shame and rage, the pilgrims returned with reports of new atrocities.

It is evident that a new crusade must be undertaken. The nations had not yet learned wisdom, and the fire of fanaticism still

burned in their hearts. A new appeal was made, and not in vain, by the most religious, the most learned, the most venerable man in Europe—by Bernard, the Abbot of Clairvaux, one of the founders of the Cistercian order, the successful opponent of Abelard, the friend of kings, the maker of popes, the oracle of councils. No ignorant hermit now appealed to the heart of Christendom, but the greatest sage of the middle ages. He was favoured by some outward circumstances. Louis VII. of France had, in a fit of drunken fury, burned up fifteen hundred people in a church: all Europe exclaimed against the barbarity. It was a more atrocious act than the burning of Thessalonica by the great Theodosius. Such an act must be atoned for. He resolved to wipe it away by embarking in a new crusade.

Suyer, the worldly-minded, practical abbot of St. Dennis, his prime minister, endeavoured to dissuade him from so rash an undertaking: a greater than Suyer, however, encouraged him. This was Bernard. Pope Eugenius III., his creature, obeyed the voice of the sage, and encouraged the penitent king. Bernard was commissioned, also, to rouse the nations to the pious work. He eagerly commenced his mission, travelling from court to court, and country to country. At the court of Conrad, he preached in a language the people could not understand; yet, such was the *manner* of his discourse, that it effected more than the *matter* when translated. It was enough for the people to see him to be enchanted. His body was, indeed, bent with sickness and fasting, and yet he had strength to preach to a hundred thousand men; his constitution was weak; but his complexion was delicate, his cheeks fresh, his hair fair, his eye sparkling, his air devout, his voice musical, his spirit bold. Wherever he went, he kindled enthusiasm. Never was there such an orator. Women kissed his hands; beggars touched the hem of his cassock; scholars begged his old leathern girdle, to cut up into relics; people fancied that their diseases were healed by his benediction, and that devils fled at his approach. The emperor Conrad of Germany, and the king of France, made extensive preparations for the new crusade, and their followers, in two separate bodies, advanced to avenge the wrongs which Christendom had suffered from the infidels. But the second crusade, though conducted by the great monarchs of Europe in person, was even more unfortunate than the first. Not a single trophy consoled Europe for the additional loss of two hundred thousand men. Every precaution had been made to avoid the evils of the first expedition. Bernard, when pressed to take the command, declined. In vain two great princes strove to preserve order and decency. Still misfortunes thickened. The Greek emperor Manuel was more perfidious, if possible, than his grandfather Alexis. He even secretly aided the infidels. The gates of his cities were shut against the crusaders. Then food was lowered

to them from the walls. They were regarded with aversion and mistrust; their friendship was more dreaded than their enmity; bridges were broken down as they approached; their stragglers were cut off; their horses were poisoned, or pierced with arrows in the woods; their sick were burned in their beds, and their bodies hung on gibbets. They were hemmed in on all sides by implacable foes, from whom it was difficult to retreat, and with whom it was impossible to contend. Still, something might have been done, had it not been for the incapacity of their chiefs, who foolishly undertook the siege of Damascus, instead of reconquering Odessa—their original intention. The shameful and disastrous termination of the crusades afflicted and mortified Christendom. Bernard himself did not escape the censure of his age, for the part he had taken. His biographer consoled himself, however, with the reflection, that the death of so many warriors had only peopled heaven with martyrs.

The third crusade, after an interval of forty years, was not so shameful as the second, nor so unfortunate as the first. It was the best conducted of all these expeditions, being led by Philip Augustus of France, Frederick Barbarossa of Germany, and Richard Cœur de Lion of England. But it was equally unsuccessful. Some glorious victories were obtained, and some inconsiderable advantages were secured. They avoided the blunder of their predecessors, and went to Palestine by sea instead of by land. Not so many men embarked, but those who did embark were of the flower of European chivalry. All Europe was represented; every land sent its pilgrim warriors.

But, at this time, they were rather warriors than pilgrims. They did not care so much about the atonement of their sins, as the revenge of their injuries. The first crusade was animated by purely religious ideas; the third more powerfully by military ardour, and the struggle was more desparate, more for glory than for peace. Compare Godfrey with Richard. The former was a saint, the latter a pure warrior, magnanimous, generous, disinterested in deed, but bold, brave, and passionately fond of glory. He was a better soldier than general; was too impulsive; too easily cheated. As a general, we think Philip Augustus was his superior, although not so heroic or powerful. He made up for the absence of strength and ardour, by craft and dissimulation. He was supremely bent on advancing his own interests, and was jealous of the fame of Richard. And he managed better. Cold, politic men always have the superiority over the brave and impulsive. They know how to avail themselves of opportunities, and they scruple not to take advantage of consequences. Even the Saracens feared Philip more than Richard, and hated him less. Mothers screamed when the name of Richard was pronounced, because he was powerful with his battle-axe, but the leaders

dreaded that cold and able general who made combinations, and who baffled their plans. But neither Richard nor Philip was equal to Saladin as a general, nor so distinguished as a man. Saladin had risen from almost nothing. His father was a sort of chief of a pastoral tribe on the hills back of the Tigris. The son was sent into Egypt to fight for Noureddin, the sultan of Aleppo. Egypt was then governed by the last of the Fatimate kings—as contemptible as the Merovingians, imbecile and luxurious, who lived in their marble palaces, at Cairo, with their women and eunuchs, and nowhere else. Saladin rose to become vizier, and acknowledged only a nominal dependence on the sultan. By talents, and virtues, and policy, he gradually obtained the undivided sovereignty of Egypt and Syria. Then he picked a quarrel with the king of Jerusalem, and then re-conquered Palestine. The Templars and Hospitallers performed prodigies of valour; but in vain: Saladin, with overwhelming forces, successively triumphed at Tiberias, Acre, Jaffa, Cæsarea, and Jerusalem. Loath were the christians to part with their capital; four days were spent by the miserable inhabitants in weeping over the holy sepulchre. The heart of the generous victor was touched, but he would not relinquish the fruits of his victory. The great cross was taken down from the sepulchre, the bells of the churches were melted, and the mosque of Omar was purified, never again to fall into the hands of the Christians. But they made desperate efforts to regain it. The recovery of Acre, the ancient Ptolemais, thirty miles south of Tyre, was the first great object which they aimed at. Two years were wasted beneath its walls; all that was known of the art of war was put in practice; the ancient and the feudal Asiatic and European moveable towers, the Greek fire, catapults, and battering rams. But valour produced but feeble results. No impression could be made on the strongest citadel in the world. Moreover, the chiefs quarrelled, and all fought on their own account. There was not sufficient unity nor concert. Richard's haughtiness insulted Philip Augustus, and his bravery excited his envy. Philip returned to Europe in disgust, as soon as Acre surrendered. This was the blunder of the war. There were not left sufficient forces to reduce Jerusalem, since Saladin was as brave as Richard, as politic as Philip, and as enthusiastic as Godfrey. Moreover, Richard was dejected, though not appalled. But he had to yield to an irresistible necessity. His followers sighed to return. His army was reduced. Messenger after messenger arrived with tidings of the schemes of Philip and the treachery of John. He was wanted in England. Heroically would he have persevered, but finding himself surrounded by superior forces, cut off from supplies, his followers suffering from famine and disease, impatient to return, and hopeless of success, finding himself deserted, betrayed, and in danger, he gave the order to retreat.

How keen the anguish of that mind in being compelled to abandon all the cherished objects of his desires! He felt the disappointment with all the bitterness of a broken heart and a crushed ambition. He was led to a hill from which he could see the sacred city, but the sight and the associations were too much for him to bear. He covered his face with his hands and burst into a flood of tears, exclaiming, "My God, let me not behold thy city, since I am unable to deliver it!" Poor Richard, he received but a miserable recompense for all his heroism. He obtained an immutability of renown, but purchased most dearly by the loss of his treasure, of his subjects, and almost of his life. He eclipsed all the crusaders in valour, and in knightly qualities, but was haughty, impetuous, and incautious.

The third crusade was virtually the last, although there were several afterwards, and lasted for two centuries. Innocent III. strove to kindle the old flame; but it had burned out. St. Louis the IXth of that name, was the last great crusader; a man who had the sentiments of Godfrey, and the magnanimity of Tancred, but not their talents or activity. He would made a good monk, but was a miserable king. He did not understand the spirit of the age. He did not see that a great change had taken place in Christendom; that new ideas and new interests had sprung up; that hatred of Mahometanism no longer was an animating principle in society, nor the recovery of the holy sepulchre the absorbing passion of Europe. The power of barons had been undermined, and the dominion of kings consolidated; the people had gained privileges, were more selfish and less devout. Two hundred years had weakened the prejudices of society, had dispersed ignorance, had rebuked injustice, had ridiculed fanaticism. Rationalism had been undermining respect for authority; opposition to papal dogmas had commenced; at Lyons, the Waldenses had propagated their doctrines; all Languedoc was a scene of contention between races and religions; reform was loudly called for. In literature there had been a movement as well as in philosophy. The Provençals had sung their gay and immoral songs, and the Normans their wild and heroic strains. In Flanders, a new class of men had arisen, the weavers, who clamoured for privileges, and who defied kings. The merchants of Venice and Genoa had become princes, and the Mediterranean was whitened by ships. A copy of the Pandects was discovered at Amalfi; and Bologne, and Paris, and Oxford, sent out crowds of enthusiasts into the world. Lawyers began to supplant the clergy as ministers of kings, and to show them how they might defy the pope. Peter Lombard had systematized the scholastic philosophy. Roger Bacon had twice experimented in physics; and Dante, as well as Petrarch, had breathed out angry indignation in view of the corruptions of that fearful spiritual despotism which still enslaved the world—veiled,

indeed, by the language of allegory, but revolting in its spirit and effects. In short, a very brilliant era was about to commence.

All Europe was filled with the low murmur, which sounded like distant rumblings of approaching convulsions. The volcano was about to burst forth. Europe was on the eve of revolution, and great social changes.

And these changes the crusades doubtless hastened, and, in some instances, caused; hence, we are led to glance at the effects of these military and fanatical expeditions.

And respecting these, as about the wars themselves, historians and philosophers differ, some being their unqualified panegyrists, like Robertson; and others, like Guizot, admitting their defects, but encircling them in the spirit of a sort of philosophical optimism, which savours much of fatalism, while it professes to recognize the superintending providence of God, and is akin to that doctrine of development on which the admirers of progress, as proceeding from man alone, have, of late years, been constantly harping.

We look upon the immediate and natural results of the crusades as undoubtedly disastrous; though they may not have checked the ultimate improvement of Europe.

But we speak not of the six millions who perished, nor of the treasure which was expended; we speak not of the tears and miseries of those who lost their fathers and brothers. These are the legitimate and unavoidable fruit of all wars. But the moral evils were greater than the physical. All the historians speak of the dreadful and disgusting depravity of the crusaders themselves, as almost unparalleled. From the day they took the cross to the day they died miserably by famine or the sword, they were disgraced by the abominations of sensuality. They robbed and devastated the places where they sojourned. They destroyed all who opposed their outrages on the rights of property, and on the kindness of those who had given them generous hospitality. They injured the marbles of Alexis, they insulted his subjects, and ridiculed their customs. Their camp was disgraced by every species of degrading vice; they were licentious, drunken, treacherous, brutal, and rapacious; they quarrelled among themselves; they needlessly destroyed cities and works of art; they wantonly murdered women and children; they spared not even their allies; they were as imperious to their friends as their enemies; they were detested and dreaded more than the plagues of Egypt; they perished most miserably, and more from the effects of their excesses, than the sword of the Mahometans. And those few who lived to return exerted a very bad influence. They were profligate, idle, and seditious; they poisoned the communities among whom they dwelt; they filled the towers and places of infamous resort; they brought with them oriental tastes and fashions; they

introduced jugglers and strolling players; they favoured a war spirit, and were ready for tricks and robberies; almost everything they brought back with them was bad; in hardly any respect were they improved. Their bodies were diseased, their sentiments were lax, their taste vitiated. Templars and Hospitallers were no exception. They fanned the spirit of religious persecution—for the sufferings of the Waldenses did not take place, and the inquisition was not established until after the return of many of the crusaders. In short, all the evils of war—of aggressive war—of fanatical and unjust war, occurred, as was to be expected; for good fruit does not grow on an evil tree.

We confound all the principles of morality, and all the sober truths of history, when we see in the natural and immediate effects of the crusades, anything else than the evils which ever have resulted from a violation of the precepts of a benevolent religion. But then this fact is true of nearly all the experiments of mankind. Evil is the natural result of war as of other passions. But God caused the wrath of man to praise him. Evil is overruled for good. There were great incidental, as well as direct, advantages from the crusades.

In many respects the impulsive warriors fought for us—for civilization. They rendered services to remote generations; and these were great, inestimable, invaluable. What were these blessings, these services, these results? In the first place, they saved Europe from a Mahometan yoke. We have already alluded to the fear of this yoke, as one of the causes of war, and hence should not enlarge. But if we may predict anything, it was the danger to which Europe was exposed from the hitherto victorious progress of the Turkish and Saracenic arms. Their conquests were arrested. The infidels never penetrated further than Constantinople; and their conquest of that city was arrested for four hundred years. When it fell it was no longer a barrier, or rather Europe then did not need it as a barrier. It was then able to resist Mahometanism. But when Pope Urban II., at the council of Clermont, urged the nations of Christendom to repel the barbarians on the confines of Asia, rather than expect them in the heart of Europe, the Turks were occupying Syria, Armenia, and Asia Minor, while the Saracens held Africa, Spain, and the Balearic Islands. The Greek empire tottered on the verge of destruction; Asia Minor was covered with armies to the very shores of the Hellespont. The battle of Dorylæum, where twenty thousand Turkish horsemen encompassed and had nearly crushed the flower of the European chivalry, headed by the heroic Godfrey, might alone have taught the historian Gibbon, when he denounces the crusades, that nothing short of an overwhelming weight of resistance could have held in check the tremendous Turkish inundation. The maxim of natural philosophy

that action and reäction are equal and contrary, has also its historical application; the force required to drive back the stern barbarism of Islamism is the exact measure of the impulse with which, but for Latin chivalry, they would have burst upon the Greek capital and over the eastern portion of Europe; but in the eleventh century, perhaps at any period prior to the fifteenth, the barrier of the Hellespont once forced—Europe, disorganized and incapable of a united effort, must have been quickly swallowed up. But the Turks, notwithstanding the unfortunate termination of the crusades to the Europeans, were driven from before the walls of Constantinople; they were broken and beaten back, step by step, in a successive generation, through Syria; their fortified cities were successively taken; and for a while the frontier of Christendom was advanced to the line of the Euphrates. Another advantage was increased liberality of mind. Guizot attaches great importance to this. The crusader, from seeing different countries and institutions, became more enlarged in his notions—all travelling has this effect. Constantinople and Antioch were seen to be finer cities than Paris or Vienna; Saladin was found to be more courteous even than the European; the Mahometan no longer appeared a monster; some delusions were dispelled; men learned to appreciate their own weakness and their strength; and the world, opened towards the east, was larger than before supposed; the horizon of knowledge extended. "Europe and Asia," says Michelet, "had been brought together, and had recognized each other. Hatred ceased. In the vast camp before the walls of Acre, the two armies had occasionally mingled; merchants of both religions danced with each other, and the Christian minstrels lent their voices to the sound of Arabian instruments. The miners on both sides agreed to do each other no injury when they met in their subterranean tasks. Indeed, each side came to hate itself more than the enemy. Richard prefers Saladin to Philip Augustus, and Saladin detests the assassins more than he does the Christians."

Again, the crusades gave a shock to the political importance of the feudal aristocracy. Monarchs perceived that standing armies were better than feudal armies, and the social position of a baron somewhat changed; he became a courtier instead of a sovereign; the people also extorted of him many privileges. He wanted money to provide for his expedition, and had to part with many of his hereditary rights to secure means for his long journey, and whatever privilege the people gained, they kept; they obtained those charters which secured their farms and their shops; the mercantile class rose in importance, in consequence of the increased activity and trade; free cities spread and multiplied; their population of artificers and small merchants were able, by combination, to resist the power of the barons; central power raised its head, and sided with the people against their old feudal oppressors; civil liberty

received an undoubted impulse. And so did commerce, and the material civilization of Europe. The crusaders wanted ships to transport themselves to Asia; they applied to Venetian and other commercial cities; and the merchants made their fortunes, not out of the misfortunes of the warriors and pilgrims, but from the new demand for Asiatic luxuries.

We need not expatiate on the advantage of commerce, nor on its effects on European liberty. In the Italian cities, the ideas of the classical world were revived, and assemblies of the people commenced—not in all instances for good, for the nations were unprepared for freedom, but the idea of freedom was disseminated. The desire for it survived the miseries and mistakes attending on the ineffectual struggles to secure it. It was prized as an invaluable blessing, and the material prosperity of the western nations increased; houses became more comfortable; churches became more splendid; the utensils of husbandry and of cooking were improved; tastes became more refined, and social intercourse more cheerful; linen and woollen manufactures supplanted the coarser fabrics of the dark ages; art revived, and possibly literature, although we have no faith in the literary taste of soldiers, nor the spread of literature from warlike ideas; material thrift, physical comfort, increased social intercourse, and the refinements of elegant life, doubtless received an impulse. And so far as these did not foster an epicurean taste and the vices of self-interest—those fatal asps which are so often concealed in the luxurious baskets of fruit—and undermine the moral health, even in the midst of material grandeur and splendour—so far as the crusades did not generate the poison of worldly cunning, and egotistic display, and self-indulgent repose, with the love of thrift, and comfort, and indulgence, their social and political effects are not to be commended, unless we laugh at all the struggles of mankind, and pronounce liberty itself a delusion and a name.

There was one truth, at least, which the world learned. It learned that it was no easy thing for races of men to exterminate each other; that Providence would protect all his children in the hour of danger and despair. Europe did not conquer Asia, nor Asia conquer Europe. The crusades did not suppress Mahometanism, nor the Saracens extinguish Christianity.

Ever since Charlemagne, the east looked with contempt and hostility on the western nations, and longed to join them to the empire of the Caliphs, and for several centuries the Christians had hoped to destroy the Mahometan empire; all the conflicting races and religions discovered that only momentary success could be gained. They learned humility, and also self-reliance; that man was feeble in assailing the rights of others, but was strong in defending his own. They learned the truth, though they may afterwards have forgotten it, that of all mistakes and crimes, aggressive war

is the most fatal and melancholy, and is sure to be visited with God's severest judgments. And, considering the proneness of man's nature to contention and bloodshed, it is something to have the great truth impressed on the memory of mankind, even by secular history, that it is love alone which overcometh the world, and that "blessed are the peacemakers, for they shall be called the children of God."

Art. IX.—PLATO'S PHÆDON.

Platonis Opera Omnia ad Fidem Optimorum Librorum denuo recognovit et una cum Scholiis Græcis emendatius edidit Godofredus Stallbaumus, *Prof. Lips. Gymnasii Thomani Rector.* Nova Editio Stereotypa. Lipsiæ Sumtibus et Typis Caroli Tauchnitii. 1850. 8 vols.

The Works of Plato. A New and Literal Version, chiefly from the Text of Stallbaum. Vol. 1*: containing the Apology of Socrates, Crito, Phædo, Gorgias, Protagoras, Phædrus, Theætetus, Euthyphron, and Lysis.* By Henry Cary, M. A., Winchester College, Oxford. London: Henry G. Bohn, York Street, Covent Garden. 1848.

Schleiermacher's Introductions to the Dialogues of Plato. Translated from the German, by William Dobson, M. A., Fellow of Trinity College. Cambridge, 1836.

To Schleiermacher is unquestionably due the praise of having suggested the best arrangement of the Dialogues of Plato, which has yet been made. The key to his scheme is furnished by Plato himself, in that memorable passage of the Phædrus in which Socrates repudiates the notion that letters are "a medicine for memory and wisdom." The points in which written instructions are likely to be deficient, are briefly and pungently intimated, and the true method of successful teaching, which consists in awakening curiosity, stimulating spontaneous activity, and turning learners into ardent and interested inquirers—are happily illustrated. Schleiermacher conceives that the model, after which Plato composed his works, was that of animated oral instruction, and that he has attempted to imitate, as nearly as possible, the process by which an intelligent teacher quickens and directs the mental energies of his pupils. His aim has been, not to impart results which could be treasured up in the memory, and which frequently convey no real knowledge to the mind; but to make

his disciples work out for themselves and produce, by their own spontaneous activity, the truths which he seeks to establish. He has endeavoured, not to think for them, but to make them think for themselves. Guided by this principle, he has adopted the form of dialogue, and infused into it a degree of life and animation which it has in no other hands. The very perfection, however, to which he has carried it, becomes a source of obscurity. The most continuous attention is required to keep up the thread of discussion, and, as he was particularly anxious to guard against the form of knowledge without the power, the most intimate sympathy with his own mind is constantly exacted, in order to detect his real purpose. In the hands of Schleiermacher, his works constitute a regular gradation, and his philosophy comes out as an organic whole. Bekker, in his splendid edition of the text, has adopted Schleiermacher's arrangement, and has paid him the distinguished compliment of being the *Restorer of Plato.* For a critical vindication of the grounds upon which the arrangement has been made, we refer to the General Introduction, which comes first in the translation of Mr. Dobson, mentioned at the head of this article. Unless Mr. Bohn's series supplies the deficiency, we have nothing in English that deserves to be called a translation of Plato's works. The version of Taylor—the only one pretending to completeness—is often inacurate, and in some parts, intolerably obscure. The series of Bohn, of which the first volume appears in our rubric, we have examined only in relation to a single dialogue; but we can hardly hope to see any translation in our own language, equal to that, as far as it was prosecuted, of Schleiermacher in the German.

We do not profess to be disciples of Plato; our partialities and affinities are all, on the other hand, with his illustrious scholar, whom he himself pronounced to be the "intellect of his school." Still we are prepared to render all proper homage to the divine genius of the master, to admire the skill with which he has turned philosophy into poetry, and converted speculation from a barren waste of briars and thorns into a garden of delightful and refreshing flowers. We are not insensible (who can be?) to the exquisite graces of his style, the grandeur of his thoughts, and the inspiring elevation of his aims. The world owes him a debt of gratitude for the service which, in modern times, his works have rendered to the cause of truth. The most potent weapons by which the progress of a low and sensual philosophy has been arrested, have been drawn from his armoury. It was he who stood in the breach against the artful sophistry of Hobbes, and vindicated the eternal principles of right, and he, too, has furnished the most striking illustrations of the doctrine which the French interpreters of Locke overlooked or despised, that there is more in the mind than experience puts there. In every department of modern speculation, his influ-

ence has been felt. The greatest philosophers of the age have vied in their encomiums upon him; and we presume that he is now better understood, than at any previous period since he wrote his immortal works. But the reäction in his favour, considering the quarter from which the impulse came, raises a presumption, which a patient study of his writings serves to confirm, that his philosophy contains the germs of speculations which, developed in one way, conduct to absolute idealism, and, in another, to what Sir William Hamilton calls, presentative idealism. The dualism of nature finds no place in his scheme. He is essentially rationalistic, and we have been amused at the ease with which Schwegler, in his History of Philosophy, has translated his doctrines into the dialect of Hegel. While protesting against the scope and spirit of the system, we may be allowed, however, to express our approbation of particular parts, especially when interpreted upon the principles of common sense. The immortality of the soul, as unfolded in the Phædon, we have always looked upon as a precious gem; and the whole conversation of Socrates, in his last hours, we have been accustomed to prize, as among the richest legacies of ancient genius. The Phædon is, indeed, an important contribution to natural theology. Its aim, according to Schleiermacher, is to describe the philosopher in death, as the Symposium or Banquet had described him in life. This is a noble subject, and we propose to give a brief analysis of the dialogue, accompanied with a running commentary, as far as it touches upon the question of immortality. A critical estimate of Plato we reserve for another opportunity.

The Phædon, which has a double title, Φαίδων, ἡ περὶ ψυχῆς, derives one from the name of the person who is made to narrate the discussions it contains, and the other from the subject which those discussions principally embrace. Phædon is represented as relating to Echecrates, at Phlius, the conversations of Socrates on the last day of his life, with his intimate friends who had visited him in prison. This Phædo was indebted to Socrates, not only for the emancipation of the mind by the lessons of philosophy, but for the emancipation of the person by redemption from slavery. He was a native of Elis, of noble descent, but having lost his property in early life, he was sold into bondage at Athens. Socrates, in passing the house where he lived, was struck with his intelligent and ingenuous look, and prevailed upon one of his friends, Alcibiades or Crito, to purchase his freedom. From that time forward, Phædo became a disciple of Socrates, and adhered to his master, with the most affectionate attachment, to the last. He subsequently founded a school at Elis, in which he perpetuated the spirit and method if not the doctrines of the Socratic philosophy. The other title—Concerning the Soul—indicates the subject of the conversations in question. The point which Socrates proposes to

establish is that death, so far from being an injury, will prove a real blessing to the good man, or the man who devoted his life to philosophy. This, of course, implies that the soul shall continue to exist, and hence the first step in proving the proposition is to prove that the soul is immortal. The discussion assumes the form of a forensic argument. Socrates appears before his friends as judges to vindicate the calmness, confidence, and hope with which he was awaiting the execution of his sentence. He was in no consternation or alarm; he was not even sad or dejected. This strange dignity and serenity of mind he asserts to be just and reasonable; precisely the deportment which befitted a philosopher; and the ground on which he maintains his proposition is, that the philosopher has hope in his death. If I can make out this point, he says to his friends, you must acquit me of everything unworthy in my present demeanour. The whole discussion, then, may be reduced to these two questions: first, shall the soul survive the dissolution of the body? and if so, second, shall its future condition be at all determined by its present character? These are certainly the most interesting questions which humanity can agitate, and no one who feels that life is an earnest and solemn reality can study, without emotion, the profoundest efforts of human reason to solve the mystery of our being. It is delightful to reflect that, upon these points, the mind of Socrates became clearer and clearer the nearer he advanced to his end. The words with which he closed his apology—that sublimest production of uninspired mortality—indicate a lingering doubt. "But it is now time to depart; for me to die, for you to live. But which of us is going to a better state is unknown to every one but God." His thoughts were no doubt intensely occupied with his prospects and destiny during the thirty days which elapsed between his trial and execution, and it was most cheering to see that he had attained such stability of opinion as to express, on the last day of his life, a firm and unshaken confidence that good would befal him in the other world; that, after having drunk the poison, he should depart to some happy state of the blessed.

The art is exquisite by which the question of immortality is introduced for discussion, and the subject reduced to the forensic issue which it is made to assume. Everything is natural, everything happens just as we should antecedently have supposed. The friends of Socrates enter the prison just as his leg had been released from the chains. They find him rubbing it. The change in his physical sensations leads him to remark on the unaccountable alternations of pain and pleasure; and the mysterious providence, which had inseparably united what, in their natures, were essentially diverse. It struck him as a fine topic for a fable, and he fancies the manner in which Æsop would have treated it, if it had been suggested to him. The mention of Æsop reminds Cebes

of the circumstance, that Socrates had employed himself in prison in turning the fables of Æsop into verse; and as several had asked him, and particularly the philosopher Evenus, why Socrates had done so, he takes occasion to seek an explanation. Socrates satisfies the inquiry, and, in return, sends a message to Evenus. This message is the immediate occasion of the whole subsequent discussion. "Bid him farewell," says Socrates, "and if he is wise, tell him to follow me as soon as he can." To this Simmias confidently replies, that Evenus would be very far from complying with any such advice. It was evidently, in the judgment of Simmias, a very foolish thing to wish for death. Socrates now prepares to lay down and support the thesis, that death is a real blessing to the philosopher, and that he will desire it with an ardour proportioned to the progress he has made in wisdom. But before discussing this point, he obviates the objection which might be drawn from the apparent sanction which the doctrine gives to suicide. If it is a blessing to die, the sooner the better; and, as every man has it in his power to depart when he pleases, it will be his interest to do so. Socrates rebuts the objection by an argument against suicide which Paley has formally disclaimed. Life is a trust, and we have no right to renounce it upon our own authority. God gave, and God must take away. We are the divine property, and it is not for us to dispose of ourselves. But, rejoins Cebes, if we are the servants of God, and bound to his service, then death is the escape of a fugitive slave from his master. The wise man, consequently, should revolt from it, as destroying a relation which is pleasant and honourable. Very true, admits Socrates, if death were the end of the man. But there is the fallacy in the argument. The soul still lives, and its relation to God is not destroyed. "If I did not think," says he, "that I should go first of all amongst other Deities who are both wise and good, and next, amongst men who have departed this life, better than any here, I should be wrong in not grieving at death. But now, be assured, I hope to go amongst good men, though I would not positively assert it; that, however, I shall go amongst gods, who are perfectly good masters, be assured I can positively assert this, if I can anything of the kind." In this way the subject is fairly introduced; his friends are constituted judges, and he pleads his cause at their impartial tribunal. To appreciate the force and pertinency of the argument, we must bear in mind the peculiar form of the question. It is not directly whether the soul is immortal, or whether the good shall be happy hereafter; but whether a wise man should be reluctant to die. In giving a negative answer, the great doctrine of life and immortality is adduced as the principal argument. The philosopher should welcome death, because he will still continue to live, and to live in a better and happier state than the present. The point of view from which all the reasonings, and

particularly the arrangement of the arguments of Socrates, must be contemplated, is plainly enounced by himself. "I wish to render an account to you, my judges, of the reason why a man who has really devoted his life to philosophy, when he is about to die, appears to me, on good grounds, to have confidence, and to entertain a firm hope that the greatest good will befal him in the other world, when he has departed this life."

1. The first argument is that death, after all, is only the consummation of philosophy—the completion of that which philosophy had begun, and to which its whole discipline had been directed. Those who properly engage in the pursuit of it have no other aim than to fit themselves for the act of dying, and for the state of death. This beautiful and striking thought has been transmitted from writer to writer, but in none is its significancy so fully and pregnantly unfolded as in the illustrations of Socrates. "*Tota philosophorum*," says Cicero, "*vita commentatio mortis est.*" But in what sense is death the consummation of philosophy? To apprehend the doctrine of Socrates upon this point, we must fix clearly in our minds what he means by philosophy, and what he understood to constitute the pursuit of it. Philosophy with him was not mere speculation—the mere exercise of thought and reflection. To know was not simply to perceive that a thing was true. From a failure to seize the true point of the Socratic doctrine of knowledge, has arisen a corresponding misconception of the Socratic doctrine of virtue. Socrates certainly resolves wisdom into pure speculation, and virtue into science or a form of intelligence. But speculation with him is not a bare perception of the realities of things, or the consistency of thought; and science is not the developed evolution of a series of notions or cognitions. To know was to be in harmony with the truth; to speculate was to feel its power. Philosophy was a life, and philosophic thought the energizing of a being from the fulness of its life. The mind was the *home* of eternal verities—the place where they abode, not as occasional visitors or transient guests, but as the permanent proprietors, who had all its mansions adjusted to their own nature. The correspondence betwixt this representation of philosophy and the Scriptural representations of religion, subjectively considered, is too obvious to escape the dullest apprehension. True piety is a life and not a creed—the energies of a new nature, and not the formal apprehensions of a sound logic. The creed presents the means which produce, awaken, and regulate the motions of the living principle; it furnishes the occasions and conditions of its manifestations, just as sense and experience develop in consciousness, without constituting the primordial elements of human knowledge. The creed brings out the religion, but does not constitute it. Still the creed is as necessary to piety as the world of sense and the phenomena of experience to real science.

The question next arises, what are these *truths* that constituted science? Were they the facts and events of the phenomenal and changing world about us? Were they the things which the eye sees, the ear hears, and the hands handle? So far from it, that these were the things which kept the mind from the embrace of truth. Real truth, that which alone was worthy of the name, and which could be dignified as knowledge, was conversant only with the permanent, the unchanging, the eternal. It had to do with the real essences of things, not with their shifting forms. There could be, according to Socrates, no science of the phenomenal and transitory. Sense dealt with them—intelligence with truth. But what, again, were these unchanging essences? The answer to this question introduces us to the whole subject of the Platonic doctrine of ideas. Without insisting upon the various senses in which the word *idea* is employed by Plato at one time to indicate the common properties of individual things by which they become genera and species; at another, to express the laws of belief, the constitutive and regulative principles of human knowledge—at one, as equivalent to final, and at another, to efficient causes; without agitating the question about the objective reality and substantial existence of ideas; it is enough for our present purpose to state the sense in which, in the present instance, Socrates seems to us to have employed the term. They are, briefly, those perfections of the divine nature, those principles, so to speak, which underlie the whole fabric of existence, and give to everything its form and shape. They are the *reasons* of its being what and how it is. The good, the beautiful, the just—these were ideas, these were truth; they were the principles which the phenomenal and changing might be made to represent—which actually underlay them. They were the reasons, the final causes of all things. Ideas, in other words, are the plan of the universe in the great principles on which and ends for which it has been founded. Now, knowledge was the living participation of these ideas: a man knows only in so far as he can abstract his thoughts from all converse with the phenomenal and changing—the forms which conceal truth—and hold direct converse with these fixed and eternal realities in their simple and uncompounded essences. When his mind was made homogeneous with them, then, and only then, could he be styled a philosopher. Hence the discipline of philosophy was a discipline of abstraction from the world—of separation from matter and material forms—and a constant effort to bring ourselves into the condition of pure spirit.

This is what death does for us—it completes that separation after which we had been laboriously striving. It brings us into contact with pure ideas—no longer shrouded under the veil of sense, but revealed in their essential loveliness and beauty. It introduces us into the very state after which we had been ardently

aspiring. Those, consequently, who are in love with wisdom study to die—and death ought to be a welcome visitor. They have longed to be released from the thraldom of sense, and death comes in answer to their prayers. How absurd to grieve at that, in its full consummation, which they have already partially acquired, and have professed themselves anxious completely to attain.

In the development of this first argument Socrates insists, as the indispensable condition of philosophy, upon what in a wider though analogous sense, our Saviour makes the indispensable condition of salvation—the crucifixion of the flesh. Self-denial is the first lesson inculcated in both schools. Socrates traces the necessity of it to the barrier which the sensible world interposes between the mind and truth; our Saviour to the barrier which depravity interposes between ourselves and a holy God. The highest consummation of humanity, according to Socrates, was converse with pure ideas—according to our Saviour, communion with the Father of lights. But, if Christianity had dawned upon the mind of Socrates, he would have seen that the true seat of his ideas was the bosom of the Almighty, and that the only form of coming into full participation with their beauty was in fellowship with him. We can trace in this philosophy a yearning after, and a preïntimation of the wisdom which descended in Jesus. There is here a feeling after God which to our minds is inexpressibly touching. He had glimpses of that truth which makes Christianity the glorious gospel of the blessed God. And is it not a shame that, while self-denial is so nobly and earnestly preached by a heathen, there should be philosophers among us, who do not scruple to proclaim that pleasure is the chief good? that the only inquiry which becomes us, is what we shall gain or what we shall lose? Socrates in this very argument exposes the hollowness of their virtues. He shows that those habits, however materially good, which have been cultivated merely as a means to an end, are in no proper sense virtuous at all. The temperance of such men is intemperance—their justice fraud, and their fortitude cowardice. Wisdom, that is, the highest perfection of our being, must be sought for itself—it is the chief good—and to subordinate it to any other end is to renounce it.

The defence of Socrates is admitted by his friends to be complete, provided it can be shown that the soul continues to subsist after death. The probabilities that in that case it shall attain to wisdom are clear and cogent. But the doubt arises, may it not be destroyed and perish with the body? In this great shock and convulsion of nature, may there not be a total extinction of our being? To this point, then, the immortality of the soul, Socrates next addresses himself.

1. The law from which he first deduces his conclusion, is the reciprocal production of contraries. By a copious induction,

extending to everything that admits of generation, he shows that contraries are not only produced from contraries, but that the process is regularly reversed. Waking is produced from sleeping, and sleeping, in turn, is produced from waking. The mode of production in each case is the process of transition between them. On the same principle, life is produced from death, and death from life. The living are only the dead revived, and the dead are only the living departed. Hence existence is an endless circle. Nothing new is created—nothing old is destroyed. Socrates even maintains that without this ceaseless circulation of existence, the universe would come to a stand. All things would be finally absorbed in death. Hence the ancient belief seems to be justified, that the souls of the departed go to Hades, and afterwards return to earth.

2. In the next place, the existence of souls after death is rendered credible by their demonstrable existence before our birth. That they existed in a previous state, Socrates infers from the very nature of knowledge or science. This he makes to be reminiscence. The development of this thought is one of the most beautiful passages of the Phædon, and lets us into the distinguishing feature of the Platonic psychology. Knowledge, as we have seen, is the participation of ideas,—ideas are those eternal principles, which, existing first as reasons or final causes in the Divine Mind, become, in their expression or representation through matter, the efficient causes of the mode and manner of existence to every individual object. No concrete being exactly corresponds to these ideas, and yet the concrete beings around us constantly suggest them to our minds. Experience presents us with approximations, and nothing more. What excites in us the pure and perfect idea? We have the idea of equality—an idea which never fluctuates nor changes. Nature presents us with no instances of its absolute exemplification—so that it could not have been borrowed from without. We have the ideas of the good, the beautiful, the just: these have been imparted by nothing which falls under the cognizance of the senses. The phenomena of experience only *re*call them. They were in the mind before, forgotten or covered up; and experience does nothing but furnish the occasions on which they are revived. In the order of nature, they are evidently prior to sensible impressions, and hence must have belonged to us before we were endowed with sense. Man, consequently, must have existed in a previous state, and all true knowledge is reminiscence. If he existed before he was born, there is nothing incredible in supposing that he may exist after he is dead. That is, if his birth was one species of death, his death may be another species of birth. This analogy is not peculiar to Socrates or Plato; neither was the general doctrine of the preëxistence of the soul. Aristotle assures us that the ancient philosophers were afraid of nothing more than this one thing, that anything should be made out of nothing

preëxistent. "And therefore," as Cudworth remarks, "they must needs conclude that the souls of all animals preëxisted before their generations. And, indeed, it is a thing very well known, that, according to the sense of philosophers, these two things were always included together in that one opinion of the soul's immortality, namely, its preëxistence as well as its postexistence. Neither was there any of the ancients before Christianity, that held the soul's future permanency after death, who did not likewise assert its preëxistence; they clearly perceiving that, if it were once granted that the soul was generated, it could never be proved but that it might also be corrupted. And, therefore, the assertors of the soul's immortality commonly began here, first to prove its preëxistence—proceeding thence, afterwards, to establish its permanency after death." But the Socratic doctrine is peculiar in the mode of proof. Other philosophers depended upon the metaphysical speculations connected with causation. They could not admit creation—the production in time of an absolutely new being. Hence they were compelled to postulate the eternity of souls as well as of matter. But Socrates rests his proof upon the very nature of knowledge. We have ideas—that is a fact about which there can be no manner of question: it is equally certain that we did not derive them from sense or experience; we did not get them after we came into the world. We must, therefore, have had them before; and if so, we must have existed before we were born. That these ideas could have been infused at the time of birth, or, as modern philosophers would express it, could have been concreated with the soul, is untenable, upon Platonic principles, in a double aspect: 1. Ideas are eternal and immutable, and inseparable from intelligence. They exist as they are understood. Their character is to be intelligible; and hence, being eternal themselves, they necessitate an eternal reason or intelligence. 2. Creation is impossible. The soul never could have begun to be, strictly and absolutely; and therefore, what in modern systems would be only a doctrine of innate ideas, or ideas concreated and connatural with the soul, in the school of Plato was obliged to imply the preëxistence, and even the eternity of the thinking principle.

Having established to the satisfaction of his friends the preëxistence of the soul, Socrates now proceeds to the positive proof of its continued existence after death; and in this part of the argument he advances one step farther in unfolding his doctrine of knowledge, and the relation of ideas to intelligence. Here the discussion most strictly corresponds to that part of the title which leads us to anticipate a dissertation on the nature of the soul. The question is, can it be destroyed by death? Socrates answers that, being simple and indiscerptible, it is not subject to the only modes of destruction with which we are acquainted, or which, upon the

principles of ancient philosophy, are conceivable. As there is no such thing as annihilation, the resolution of a compound into its parts is the only destruction that can be admitted. But the soul is not a compound—cannot, therefore, be decomposed, and cannot, therefore, be destroyed. Thus far the argument is the same as that which is currently known among philosophers and divines as the metaphysical argument, and with which all are familiar as developed and illustrated by Clarke and Butler. But in the common form of stating it, the simplicity of the soul is inferred from the simplicity of consciousness. The indivisibility of the person is only another mode of enouncing the indivisibility of thought. This, however, is not the process by which Socrates reaches the conclusion in the dialogue before us. He infers the eternity and immutability of the soul from the eternity and immutability of ideas with which it participates in knowledge. Ideas are simple and indestructible—the mind is like them—the mind, therefore, is simple and indestructible. The process of argument is this: there are evidently two worlds—the world of ideas and the world of sense: the world of sense is phenomenal, visible, changeable; the world of ideas is substantial, invisible, and permanent: one is peopled with realities—the other with appearances. We also consist of two parts—a soul and a body. Now, the body is evidently a part of the world of sense: it is adapted to it, and belongs to it; being visible, changeable, and compound. The soul, on the other hand, is analogous to the world of ideas; it feels at home in conversing with them; they are its proper aliment and perfection; it is conscious of degradation in being absorbed in sense—conscious of restraint, of violence done to its own proper nature. As, therefore, the body is the link which connects us with the compound, phenomenal, transitory, finite, and perishing, so the soul is the link which connects us with the simple, real, permanent, infinite, and everlasting. The soul could not know, if it did not possess a nature analogous to that of ideas. It must be like them, in order to communicate with them. This is the great argument of the Dialogue, and it is essentially Socratic and Platonic. Immortality is thus made the condition of the possibility of knowledge.

We are happy to say that, in this general view of the connexion of knowledge and immortality, we are sustained by the conclusive authority of Schleiermacher. "Let it not be overlooked," says this eminently Platonic writer, "that the possibility and truth of knowledge are continually and repeatedly interwoven with the allegations of proof respecting immortality, and that, as regards our author, the two are in fact most intimately combined. For the endeavour after knowledge could not exist at all under the form of a wish to die, not even in a philosopher, if it were necessarily, at the same time, a wish for annihilation. And if the soul is to appre-

hend the essentially existent, which is not subjected to origination and destruction, and to all the conditions of imperfect existence, it can only do so, (according to the old principle, and one which in this argument must be always borne in mind, that like is only apprehended by like,) as existing similarly, and in the same manner with that essential existence. Thus, then, the immortality of the soul is the condition of all true knowledge, as regards men; and conversely, the reality of knowledge is the ground upon which the immortality of the soul is most certainly and easily understood. Hence, in the former dialogues also, in which knowledge was investigated, immortality was always pre-supposed and investigated simultaneously; and one may say, that from the Gorgias and Theætetus downwards, the two subjects are continually approximating in their progress, until they are at last in this dialogue most closely combined."

It is impossible to read this part of the Phædon without being struck with the grandeur of the thought; and though the cold sensationalist may turn from it with listlessness and indifference, or sardonically declare that there is nothing in it, we cannot but feel that what is so noble, so inspiring, so sublime, must be something more than a mere dream of the fancy. We confess that to us there is something in it. We believe that there is a necessary connection between immortality and knowledge, when knowledge is taken in that high sense in which it is discussed by Plato. We would use the connection as a proof of the existence of God, of that Eternal Mind, whose perfections and energies as they are displayed in the works of His hands, are the true originals of the ideas of Plato. Intelligence and ideas reciprocally imply each other; and as there are principles which we are compelled to recognize as necessary, eternal, immutable truths, there must be a necessary, eternal, immutable Spirit. Eternal truth implies an Eternal Mind. Plato's argument is inconclusive in reference to the human soul, because its knowledge and existence are alike derivative. It applies only to the first and underived intelligence. But still, the honour which is put upon man in making him capable of resembling God, in that which demonstrates his essential being, is a presumption that the like consequence shall attend knowledge in his case. If knowledge in God is necessarily connected with immortality, it is extremely credible that in giving man one, He designs for him the other also. The Neo-Platonists were so strongly impressed with this connexion that they made the human soul only an emanation from the divine, which eventually returned to it and was absorbed into it; and it has struck Cousin and the Eclectic philosophers so forcibly, that they have represented human reason as absolutely impersonal—as, in fact, the reason and intelligence of God manifesting itself in our spontaneous processes of judgment. If ideas are eternal and immutable,

and yet the condition of their existence is that of being intelligible, it is self-evident that there must be an Eternal Mind. But, as we can conceive of created spirits, there is no difficulty in conceiving that they may be endowed with capacities of knowledge—with capacities of apprehending that which is entirely independent of their own existence. Had Plato once admitted the doctrine of derivative spirit and derivative intelligence, he would have seen that the doctrine of reminiscence was altogether unnecessary. All that philosophy could have inferred from the nature of knowledge, was the great first Spirit, and the prime seat and original fountain of these essential forms of intelligence.

There is still another aspect in which the argument may be presented. Immortality is an original element of consciousness, a native and indestructible law of belief, but lies latent and concealed until it is developed in some act of knowledge. Like every other regulative principle of our nature, it is elicited in consciousness, on some occasions in experience. As personal identity is manifested in memory, so the belief of immortality is unfolded in the consciousness of possessing eternal and unchanging truth; and in the same way that memory may be said to prove personal identity, may knowledge be said to prove immortality.

The rest of the Dialogue, so far as it bears argumentatively upon the question of the continued existence of the soul after death, is taken up with the answer of objections, or rather with the refutation of two conceivable hypotheses: the first, that it is the result of combinations, analogous to harmony in music; the other, that, though stronger in itself, and much more durable than the body, it may yet finally wear out and perish in some of its deaths. Before articulately refuting these schemes, Socrates gives advice in relation to the value and authority of reason, and the danger of being seduced by sophistry to despise it, that reminds one very strongly of a passage in Butler's Analogy. Reason is one thing, and reasoning is another; and because arguments are sometimes perplexing, and both sides of a question may, by ingenuity, be rendered plausible, we should never permit ourselves to doubt the reality of truth, or to distrust the authority of our primitive beliefs. Hatred of reason and hatred of our species, misanthropy and scepticism, are traced by Socrates to a similar source.

His refutation of the first hypothesis is chiefly of value now, as it indicates to us the manner in which a similar theory in modern times—that which makes the soul a result of organization—may be answered. The principles in each case are essentially the same. The aim of both schemes is to explain the apparent simplicity of consciousness, and yet to admit no substantial existence but that which is material and visible.

The refutation of the second hypothesis is rendered particularly interesting by the account, with which it is introduced, of the

philosophical studies of Socrates. We see how he was led to the doctrine of ideas; and in tracing the steps of his progress, are put in a condition to apprehend the real import of the doctrine. He began with physics, but soon became disgusted with the very nature of the inquiries with which the physical philosophers were occupied. They were not exploring the causes of things—the real point at which philosophy should aim—but rather investigating the conditions which were indispensable to the operation of causes, and absurdly mistook these conditions for the causes themselves. He soon perceived that any philosophy which confined itself to the external phenomena that strike the senses, could never penetrate to the causes or principles of things. It must always miss the *real*. Why, for example, says Socrates, am I sitting here? The naturalist thinks that he has answered the question when he has explained the anatomical structure by which my body is enabled to sit—the arrangement of bones, muscles, and sinews, without which such a posture would be impossible. But in all this we have only the conditions which are necessary to the effect—the instruments of the cause, but not the cause itself. The real cause was the decree of the court which condemned him to prison, and the determination of his own mind to abide the decision. Following this track of inquiry, Socrates is conducted to the conclusion that the supreme principle, the true cause, in every case, must be sought in intelligence; and consequently true causes and true principles are only another name for *ideas*. Ideas may therefore be represented as the *reasons* why things are what they are—as that which makes them to be what they are—their real in opposition to their phenomenal existence. Why is sugar sweet? It would be idle to say, that it consists of such and such chemical elements. These do not explain the property; they only indicate certain external conditions under which the property is manifested. The true reason is, that sugar participates of that idea or essence which we denominate sweetness. This essence is real being. Now, we know things only as we are able to seize these essences. These being the true causes, philosophy, which is the doctrine of causes, is realized as far as it is able to penetrate to them; they are at once the *principium essendi* to things, and the *principium cognoscendi* to us. Matter furnishes the conditions of their outward manifestation. In themselves, they belong essentially to intelligence, and can be directly known only by intelligence. They have no outward subsistence. By virtue of their relations to the things which they constitute and animate, they fall accidentally under the categories of space and time; but they are essentially strangers to both. They have neither beginning nor end—they are eternal, incorruptible.

The principle being established, that ideas are the true causes of things, Socrates is now prepared to establish the permanent

existence of the soul. We shall abridge his arguments in the words of one of the greatest admirers of the Platonic school. "It is the peculiar character of a true principle, of a true cause, to exclude its contrary, and even the contrary of what flows directly from it. Now, the soul is the principle, the cause of life. If you should ask what makes such a body warm, I would not answer—although the answer would be true, but explains nothing—that it is *heat;* but, going first to the principle, I would reply with precision, that it is fire. If one asked what makes such a person sick, I would not reply, disease—but, fever. So, in the present case, ascending to the primitive idea, to the principle, to the cause of life, I say that it is soul. As, now, soul constitutes life, and excludes, in its quality of principle, the contrary to what it constitutes,—as that contrary is death—it must necessarily exclude death." The soul, therefore, is essentially immortal; and, if immortal, imperishable.

Here the argument for immortality ends. The rest of the dialogue is taken up in explaining the different destinies of men after death, and closes with a touching description of the last hours of Socrates.

The great practical principle which Socrates was anxious to inculcate was, that we shall live hereafter in proportion as we die here, and that we shall die hereafter in proportion as we live here. This is the doctrine of One greater than Socrates. The Son of God has declared that "he who loseth his life shall find it, and that he who finds it shall lose it." How should it stimulate us to the most exalted self-denial, when we compare our motives and inducements with those which only glimmered feebly upon the mind of the pagan sage! He felt after immortality, and longed for it; he toiled, and suffered, and died for it. We see it in the light of the gospel, but we hardly deem it worth the surrender of a lust or the sacrifice of a passion. A glorious feature is revealed, but we cleave to the earth. The love of wisdom inspired Socrates with a desire similar to that expressed by the Apostle—to depart and be with Christ. Has the love of wisdom, of holiness, of truth, no charms for us? Do we burn with no ardent zeal to attain the perfection and achieve the glory of our nature? Let all who read these lines catch the impulse of a noble and generous ambition. Let them resolve to vindicate the native grandeur of their souls, and, by the untiring pursuit of virtue and knowledge, seek for glory and honour, and make their immortality the blessedness of eternal life. We can all be more than philosophers,—we can be good and true. Let not the heathen sages rise up in judgment against us.

CRITICAL NOTICES.

Contributions to Literature: Descriptive, Critical, Humourous, Biographical, Philosophical, and Poetical. By SAMUEL GILMAN, D. D. Boston: Crosby, Nichols & Co., 111 Washington street. 1856.—Dr. Gilman is among the few clergymen in this country, who have relieved the severe studies and the still severer labours of the pastoral office by occasional excursions into the field of letters. He has hit upon the true theory of rest, which is not so much absolute repose as a change of pursuit; and when a man can turn from the grave to the gay, from the profound problems and absorbing questions of theology, to the lighter interests of literature with the facility of Dr. Gilman, he possesses elements of relaxation, which secure to him all the benefits, without the inconveniences, of a cessation from toil. His bow is never unstrung—the curve is only slackened or reversed. To Dr. Gilman the haunts of the muses are evidently delightful and familiar retreats. His taste is refined and delicate; he has an ear for every harmony, and an eye for every beauty of nature. The book before us is a monument of his industry, scholarship, and flexibility of talents. Prose and poetry, reality and fiction, philosophy and history, the serious and the comic, the pathetic and the ludicrous, are all successively attempted, and the author seems equally at home in all. Dr. Gilman cannot be charged, like Byron, with having drawn his heroes from himself, but we have never read a book in which the temper and character of the writer were more conspicuously displayed. If we had never heard of the author, or knew him only by distant report, we think we could paint a likeness of him from the various contributions of this volume, which his friends would recognize at once as a faithful portrait of the man. A childlike simplicity of manners, a modesty, chaste and innocent as that of a virgin; a keen sense of the ridiculous without a single tinge of asperity or malice, a genial sympathy with his kind, a spirit full of love to all that God has made beautiful, or susceptible of good; pure, gentle, confiding, shrinking from the very thought of inflicting gratuitous pain, these qualities are everywhere so conspicuous, that one need not be told, why the circles of Dr. Gilman's intimacy are so devoted to their pastor and friend. He occasionally indulges in satire; but his shafts are never poisoned; and if he raises a laugh at the expense of folly or absurdity, the thing is done with such evident good nature and kindness of heart, that the man who is ridiculed feels like joining in the mirth.

The contents of the volume before us are quite miscellaneous, and are arranged upon no principle but that of separating the poetry from the prose. The first in the series, the Memoirs of a New England village choir, are a very favourable specimen of the author's peculiarities. He here combines instruction with amusement, and, while exposing excesses that deserve a harsher name than follies or weaknesses, insinuates the justest notions of the real nature and ends of sacred music. Some passages are even sublime. The vein of humour which pervades the whole piece gives an edge to its soberer reflections, and the general descriptions of life and manners are exceedingly graphic. There is one custom to which the author refers, which to us is wholly unintelligible, that of slamming down the seats after prayers; and another, which we wish he had rebuked with more indignation—that of sitting in prayer. This is a posture of indolence and arrogance for which we are unable to suggest any plausible apology. It is the natural language of ease and equality—the most offensive form in which a creature can be presumed to address its God. The man who kneels or prostrates himself on the ground assumes the attitude of humility or self-abasement; the man who stands assumes the attitude of a servant, and professes his readiness to receive his master's orders; but the man who sits puts himself upon a footing with his Maker, and rather converses than prays. We cannot but suspect that the spirit of real devotion is wanting where this posture generally obtains. Natural signs are not arbitrary, and their proper effects are not accidental. We give the following passage as a specimen of the article, only protesting that our taste is so rustic and our creed so puritanical that we cannot help thinking that religion would be no loser, if both organs and organ-lofts were banished from all our meeting-houses.

"It is impossible to look back without some of the animation of triumph upon those golden hours of my early manhood, when I stood among friends and acquaintances, and we all started off with the keenest alacrity in some favourite air, that made the roof of our native church resound, and caused the distant though unfrequent traveller to pause upon his way, for the purpose of more distinctly catching the swelling and dying sounds that waved over the hills and reverberated from wood to wood. The grand and rolling bass of Charles Williams's viol, beneath which the very floor was felt to tremble, was surmounted by the strong, rich, and exquisite tenour of his own matchless voice. And oh! in the process of a fugue, when the bass moved forward first, like the opening fire of artillery, and the tenour advanced next, like a corps of grenadiers, and the treble followed on with the brilliant execution of infantry, and the trumpet counter shot by the whole, with the speed of darting cavalry, and then, when we all mingled

in that battle of harmony and melody, and mysteriously fought our way through each verse with a well-ordered perplexity, that made the audience wonder how we ever came out exactly together, (which once in a while, indeed, owing to some strange surprise or lingering among the treble, we failed to do,) the sensations that agitated me at those moments have rarely been equalled during the monotonous pilgrimage of my life.

"And yet, when I remember how little we kept in view the main and real object of sacred music—when I think how much we sang to the praise and honour and glory of our inflated selves alone—when I reflect that the majority of us absolutely did not intend that any other ear in the universe should listen to our performances, save those of the admiring human audience below and around us—I am inclined to feel more shame and regret than pleasure at these youthful recollections, and must now be permitted to indulge for a few moments in a more serious strain.

"How large and dreadful is the account against numberless ostensible Christian worshippers in this respect! And how decisive might be the triumph of the Roman Catholics over Protestants, if they chose to urge it in this quarter! They might demand of us, what we have gained by greater simplicity and abstractness of forms. They might ask, whether it is not equally abominable in the sight of Jehovah, that music should be abused in his sanctuary, as that pictures and images should be perverted from their original design. For my part, I conscientiously think that there is more piety, more of the spirit of true religion, in the idolatry which kneels in mistaken, though heart-felt gratitude to a sculptured image, than in the deliberate mockery which sends up solemn sounds from thoughtless tongues. How often does what is called sacred music administer only to the vanity of the performer and the gratification of the hearer, who thus, as it were, themselves inhale the incense which they are solemnly wafting, though they have full enough need that it should ascend and find favour for them with the Searcher of all hearts!

"This is a rock of temptation which the Quakers have avoided; in dispensing with the inspiration of song, they at least shun its abuses; and if they really succeed in filling their hour with intense religious meditation and spiritual communion—if, from their still retreat, the waves of this boisterous world are excluded, and send thither no disturbing ripple—if no calculations of interest, and no sanguine plans, are there prosecuted, and no hopes, nor fears, nor regrets, nor triumphs, nor recollections, nor any other flowers that grow this side of the grave, are gathered and pressed to the bosom, on the margin of those quiet waters—if, in short, the very silence and vacancy of the scene are not too much for the feeble heart of man, which, if deprived of the stay of external things, will either fall back on itself, or else will rove to the world's end to expend its restless activity in a field of chaotic imaginations; if, I say, the Quakers are so happy as to escape these perils, together with the seductions to vanity and self-gratification which music and preaching present, then must their worship, I think, be the purest of all worship, and their absence of exterior forms the very perfection of all forms. But, let me ask of thee, my heart, whether *thou* couldst fulfil these severe conditions? Wouldst thou no longer obtrusively beat and ache beneath the external serenity of a Quaker's composed demeanour and unmodish apparel, and voiceless celebration?

Thou shrinkest from the trial, and art still convinced that the road in which thou canst best be trained for heaven, lies somewhere at an equal distance between the bewildering magnificence of the Romish ritual, and the barren simplicity of silent worship.

"I have long doubted whether, in the prevailing musical customs among our New England Independent churches, there be not something more unfavourable to the cause and progress of pure devotion, than can be charged against many other popular denominations. The Methodist and the strict Presbyterian have no separate choirs. They have not yet succeeded so far in the division of spiritual labour, as to delegate to others the business of praise, or to worship God by proxy. I have often witnessed a congregation of one thousand Methodists, as they rose simultaneously from their seats, and, following the officiating minister, who gave out the hymn in portions of two lines, joined all together in some simple air, which expressed the very soul of natural music. I could see no lips closed as far as I could direct my vision, nor could I hear one note of discord uttered. Was it that the heartiness and earnestness which animated the whole throng, inspired even each tuneless individual with powers not usually his own, and sympathetically dragged into the general stream of harmony, those voices which were not guided by a musical ear? or was it, that the overwhelming majority of good voices, such as, I presume, if exerted, would prevail in every congregation, drowned the imperfect tones, and the occasional inaccuracies of execution, which most probably existed? It did not offend me that they sang with all their might, and all their soul, and all their strength; for it was evident that they sang with all their heart. I was conscious of hearing only one grand and rolling volume of sound, which swallowed up minor asperities and individual peculiarities. This was particularly the case after two or three verses were sung, when the congregation had been wrought into a kind of movement of inspiration. Then the strains came to my ear with the sublimity of a rushing mighty torrent, and with an added beauty of melody that the waters cannot give. The language was still distinctly intelligible, and the time perfectly preserved. And although, when I retired from the scene, I could not say how expressively this chorister had sung, nor how exquisitely the other had trilled, nor could compliment a single lady on her golden tones, nor criticise the fine science of the counterpoint, yet I felt that I had been thrilled and affected in a better way, and could not but wish that what was really to be approved of among the Methodists might be imitated in those happier churches, where religion is cultivated without protracting her orgies into midnight, and cordially embraced without the necessity of delirious screams and apoplectic swoons.*

"Perhaps it may be thought that the good old Presbyterian way of accompanying a clerk, or precentor, who is stationed beneath the pulpit, in front of the congregation, will most generally secure the true spirit and perfection of sacred music. Born and nurtured an Independent as I am, I confess that I sometimes feel inclined to the adoption of this opinion,

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*I am happy to testify that these features are growing far less characteristic of the Methodist denomination, than they were at the first publication of The Village Choir.

with a few additions and modifications. There is certainly an advantage in imposing upon a single individual the business of leading the melodious part of public devotion. It must necessarily constrain the congregation to unite their voices with his, unless they are totally lost to all sense of the proprieties of the sanctuary. This custom, moreover, must exclude those miserable feuds and other sources of interruption, which will always to a greater or less degree disturb a separately constituted choir.

"But, in conceding thus much to the children of the Westminster Assembly, I would beg leave to be strenuous in insisting upon a recommendation that may appear very strange as coming from a disciple of John Robinson. I cannot find it in my soul to dispense with the glorious majesty of sound with which an organ fills the house of prayer. In the tones of this sublime trophy of human skill, there is something that wondrously accords with the sentiment of piety. We know that martial bravery, love, joy, and other feelings of our nature, have each their peculiar and stirring instruments of sound. The connection between religion and the organ, too, is something more than fanciful. Who has not felt at once inspired and subdued by the voice issuing from that gilded little sanctuary, which towers in architectural elegance over the solemn assembly below, and seems to enshrine the presiding genius of devotional praise?

"I am aware that even the united aid of a precentor and organ is insufficient to check certain tendencies to the decline of good singing, which may insidiously creep into a whole musical congregation with the lapse of time. Tunes, it may be said, grow old, and weary the ear; wretched voices may prevail over the better sort; in one pew, a worshipper may always sing the tenour part in a voice of the deepest bass; in another pew, every psalm may be screamed through with one whole note out of the way; a devotion like that of the Methodists, which often seems to make them sing decently in spite of themselves, must not be expected to continue long; a fashion of indifference towards this department of worship may arise and prevail; and especially, the extensive cultivation of secular music in private families may render very many ears so fastidious, as absolutely to frustrate the object of sacred music at church, since the tasteless and indiscriminate clamour necessarily produced by the voices of a mixed congregation must tend to excite in the more refined classes a disgusted and indevout spirit, rather than the sweet and lofty aspirations of choral praise. On all these accounts, it may possibly be argued that our later ancestors have done well in withdrawing from the general congregation the performance of this service, and assigning it to a select choir, who, by concentrating their efforts, and reducing the matter to something of a profession, may keep the stream of sacred song at least pure, though small.

"Nearly all these sinister tendencies, however, might, I apprehend, be counteracted by the application of a little care and system. To prevent the repetition of old tunes from palling on the ear, a new one might occasionally be introduced by the clerk, and sung every Sabbath until the congregation were familiar with it. The affliction caused by bad voices might be disposed of by the appointment of a musical censor, or standing committee, whose duty it should be to exercise now and then an act of delicate authority, acquainting the wellmeaning offenders with the fact of

their vocal disability, and requesting from them in future an edifying silence. As to the decay of devotion, and the increase of indifference among a congregation, these appear to me to be far from good reasons for establishing a separate choir, and are rather proofs that such a choir will effect no sort of good. With respect to the last evil which a select choir is supposed to avoid, the fastidiousness occasioned by the private and profane cultivation of musical taste, I know not why a whole congregation, or at least all the efficient voices in it, may not be systematically taught good church music, and the best and purest taste be made general among them."

To this extract we add another for the seasonable hint it contains:

"It is probable, then, that experience and necessity, in the lapse of time, have forced upon our congregations the present universal custom of assigning to a few individuals the task of leading the praises in public worship. It might now be dangerous, or rather impracticable, to introduce a reformation. If imperfections exist, perhaps they are a choice of the least. Yet still it were to be wished that the choir might not be regarded, so much as it is, the sole medium through which this portion of worship is offered. It were to be wished that our audiences would consider that body as leaders only, not performers; to be followed and accompanied, not to be listened to for luxurious gratification or fastidious criticism, or as an eked-out variety of the tedious business of a Sunday. I can conceive that a choir, if properly instituted and administered, might be exceedingly useful in extending and preserving a true tone of taste, in keeping up a good selection of sacred music, and in acting, so to speak, as the teachers of the congregation, in these and kindred respects. But in the very duty thus prescribed them lies their deplorable danger and temptation. They are unavoidably liable, as was above intimated, to resolve the matter into a mere profession. In the study of sacred music as a science, and the cultivation of it as an art, they forget its ultimate object. Nor could much else be expected from the narrowness of the human mind. Must it not be hard to attend to the thousand little circumstances which a skilful performance requires, and at the same time to keep the heart strained up to a pitch of due devotion? And on the supposition that by practice and habit we can acquire a perfect familiarity with the pieces to be performed, and a mutual confidence can be obtained among all the members of the choir; yet, alas! it is in the very process of cultivating this practice and habit, that the spirit of devotion is apt to evaporate, and to leave us admirable performers rather than cordial worshippers.

"This state of things, moreover, has its temptations for the audience at large. The more beautiful the music, the greater is their inclination to listen and admire, rather than to bear a part. It seems a kind of sacrilege to let my indifferent voice break in upon the divine strains which are charming my ear. But the real sacrilege is in my refraining from the duty. Probably, about the most perfect and affecting sacred music in this country is that at the Andover Theological Seminary. Yet who, in listening to the exquisite anthem sung at the anniversary of that institution,

does not find himself unconsciously betrayed into an earthly ecstacy of weeping admiration, in which, on analysis, he is surprised and ashamed to find that mere religion has but little, if any share ?"

The sly raillery on American aristocracy, the humourous moralizing on the squeaking clarionet, and sundry other passages equally rich, we might quote, but if we extract the beauties of Dr. Gilman, we may injure the sale of the book.

The article in these contributions which has amused us most, is that on Postures. We must say, however, that there are mysteries of sitting which have escaped his attention; devices of indolence and republican independence which he has not yet mastered. We could give him some hints that we think might considerably enrich a second edition.

The part of the book which we have read with least sympathy, is that devoted to the philosophy of Dr. Brown. We concur with Dr. Gilman in his estimate of Brown's genius, acuteness, and power of analysis, but we cannot agree with him that Brown is to be reckoned among the real benefactors to philosophy. He began his career by openly revolting from the school in which he had been trained, and spent his strength in seeking to reëstablish, in a modified form, the fundamental principles of the doctrine which underlies the idealism of Berkeley and the skepticism of Hume. According to him, Reid and Stewart had, all their lives, been fighting shadows; and his chief business was to undo all that their countrymen and the rest of the world gave them credit for having done. The homage which Brown professed to pay to the original beliefs of humanity, called by Reid the principles of common sense, was neutralized by his partial interpretations of the oracles of consciousness. We need not signalize his numberless blunders and errors upon the subject of perception; his theory of conscience, as a mere sanction belonging exclusively to the emotional department of our being, is shallow and superficial; his doctrine of causation —essentially that of Hume—denies the only important element which enters into any just conception of a cause. He cancels the belief of power, and makes it to be only a relation of time. We confess that we are surprised to find Dr. Gilman following him in this extravagant consequence of a purely sensual philosophy. Dr. Gilman rejoices that there are symptoms of a reviving interest in Brown. We think, on the contrary, that Brown has had his day.

Recollections of the Table-Talk of Samuel Rogers; *to which is added, Porsoniana.* New York: D. Appleton & Co. 1856.—None of our readers are so ignorant as not to know that the ancients indulged in table-talk. Much, however, or rather the most of it, has been lost. They excelled the moderns in this, as in some other respects, and it is matter for deep regret, therefore, that many of their best talkers are known to us for their gift in this particular, only by name. This superiority is easily accounted for. It sprung from the difference of social condition. There was no printing press in that day; and being compelled to carry their knowledge along with them, it had to be imparted, if imparted at all, by oral communication. The great Greeks, and the great Romans, were, to a man perhaps, fine talkers; and the degenerate sons of these renowned nations of antiquity can make out their ancestral title in our own times by pointing to the fact, that if not the greatest table-talkers, they are the best *babblers* of the day. It is not our design to write a discourse on table-talking, but we cannot help remarking upon the difficulty of making a faithful report of conversations, and thus doing the talker justice. Few men have received any addition to their fame, by this pious and well-meant labour of their friends. For such a work, a skill not inferior to that of the greatest artist is demanded. The faithful reporter of a great man, must be something more than a commonplace fellow. He must know something of the topics which he discusses, or he may not comprehend him; he must have the faculty to *take hold of the point*, and thus perceive its force and beauty; he must be able to treasure up the *very words and forms of expression*, for all may depend upon it; nay, more, for dramatic effect he must often indulge in graphic description, and careful explanation; in short, he must have the rare power of representing the man as he is, and giving a picture so natural and life-like, that all who look may know it at once. Every man has a character of his own, and in nothing is it more prominently exhibited, than in his conversation. It would be a great fault to give a pun or a witticism of Cicero in such a way that it would look *un-Ciceronean*, or to report the table talk of Xenophon so as to make it look like Cæsar's. We read that Cæsar knew at once whether a Cicero was genuine or not. The table-talks of some of our modern great men are pretty well reported, as far as they go, but in general they are so imperfect and fragmentary, as to be of little value. This is much to be regretted. We would like very much to know more of them in their inner life; as they appeared to their friends in the freedom of unreserved social intercourse. Luther's table-talk is worthy of him, but we would have been pleased to have seen the

great reformer more frequently in his everyday attire. A similar remark may be made of Selden's. Coleridge's does him great injustice, from what we read of his powers of conversation. Hazlitt's is by no means remarkable. The truth is, that the table-talks of our distinguished modern men, as reported to us, have generally not much value. It has become the fashion of late to report table-talks, and the world is called upon now and then to read a volume of the sayings of men whose merits do not entitle them to such distinction. By far the greatest table-talker in modern times, as reported to us by Boswell, is Johnson. The work is a precious jewel, but where can we find another? We design by no means to insinuate that no one but Johnson has talked well; that the conversations of the intellectual giants of earth are not worth preserving; but who has the industry, the devotion, and the rare tact which are necessary to do them justice? If the world has produced but one Homer, one Milton, and one Shakspeare, it is alike true that it has seen but one Boswell. It is to be regretted that we have no other; and though he differs widely in the character of his genius from the great men to whom we have alluded, he has rendered an essential service, by handing down the most perfect portrait of a great man which was ever sketched, and signalized his love of truth by sacrificing to his great end all considerations of so called personal dignity and manly bearing. But we would not say anything against Boz; it is too much the fashion for the critic to speak of him in the language of contempt and ridicule. We think that he was a good-hearted, kind-tempered man, whose devotion to Johnson caused him almost to deify him; not a *fool*, as some would have it, but a gentleman of talent and most respectable knowledge. We are pained, though not surprised, when we read the following passage in Macaulay's review of Boswell's Life of Johnson: "Many of the greatest men that have ever lived have written biography; Boswell was one of the smallest men that ever lived; and he has beaten them all. He was, if we are to give any credit to his own account, or to the united testimony of all who knew him, a man of the meanest and feeblest intellect." Now, we cannot believe that a *fool* has eminent qualifications for writing biography; the wise of earth have always pronounced it one of the most difficult departments of composition; and Mr. Macaulay, not daring to deny the unrivalled excellence of Boswell's work, but determined to withhold from him all talent of whatever kind, has plunged headlong into the most monstrous absurdity. We confess that, great as Johnson was, Boswell placed too high an estimate upon him, and felt himself honoured by an association even upon terms which would not be very agreeable to most persons.

Charity should pronounce this a mistake of judgment, or an amiable weakness; for, with this exception, the record of his life shows nothing against him. But we are to write of Rogers, and not of Johnson. We leave the great modern leviathan, and shall speak of smaller fish.

Perhaps all of our readers have heard of Samuel Rogers, the banker-poet. He was born in 1763, and died in December, 1855. Though the author of many poems, his fame rests mainly on his "Pleasures of Memory." The most partial of his critics do not rank this among the great productions of our language, yet it has merit enough, perhaps, to live for many generations. Hazlitt's notice we think too disparaging. The highest compliment which he pays him is that "he is a very lady-like poet." Now, as the men are accustomed to speak of themselves as altogether superior to the gentler sex, and as at all times, and among all people, they never like to be called *effeminate* in any sense whatever, we opine that our author thought none the better of Hazlitt when he gave utterance to the words which we have just quoted. But our critic did not stop at calling Rogers a woman-author. Of his Pleasures of Memory he gives the following opinion: "It is a tortuous, tottering, wriggling, fidgetty translation of everything from the vulgar tongue, into all the tantalizing, teasing, tripping, lisping *mimminee-pimminenee* of the highest brilliancy and fashion of poetical diction." Really this looks like malice; perhaps Rogers cut the critic, on the occasion of some of his brilliant dinner-convocations, where he was wont to assemble the literati around him. But we are becoming uncharitable ourselves, and, asking pardon of Hazlitt, we let the matter pass.

But Rogers not only wrote, but *talked*, as men are apt to do; and somebody—for the name is concealed—has taken it upon himself, or *herself*, to transmit his talk to ages unborn, with the addition of *Porsoniana;* that is, notices of old Porson, with certain of his sayings and doings.

To the question, what is the Table-Talk worth? we answer generally, it is not without value. No doubt Mr. Rogers was a sensible man, and said many sensible things, but if there be anything of value in some of his recorded sayings, we confess ourselves unable to get at it. Take the following, which is the *second* record in the volume: "I well remember one of the heads of the rebels upon a pole at Temple Bar—a black, shapeless lump. Another pole was bare, the head having dropt from it." What of this? Was Mr. Rogers' testimony necessary to prove that poles have been mounted in England with the heads of rebels? Again, when a boy, his father asked him and his brothers what profession they would like to follow? He

answered that he would like "to be a preacher," for "he thought there was nothing on earth so *grand*." "When I was a school-boy," says Mr. Rogers, "I wore, like other schoolboys, a cocked hat; and after growing up, I walked through St. Paul's churchyard in a cocked hat." Though this is trash, we are far from asserting that there is nothing better. Our author seems to have been quite barren of witticisms, humourous and pointed remarks; and indeed we think, that very few have lived a third of his period, who have not said more good things. We have not, therefore, to judge him in this particular, and compare him with others. The interest of the book is due mainly to the fact, that he moved in the society of most of the renowned and brilliant men of two generations, and has preserved many of their fine sayings, and treasured up many good things, which would have been lost without him. Here again we are introduced, for a moment, to the company of Fox, Sheridan, Erskine, Burke, Wilkes, Adam Smith, Robertson, Blair, Lord North, Sir Walter Scott, Tom Moore, Talleyrand, John Wesley, Dr. Priestley, Horne Tooke, John Howard, Crabbe, Coleridge, Southey, Wordsworth, &c., &c. To have seen these eminent men, and scores of others whose names we will not mention, is a thing of interest in itself; but when it is further remembered that he was admitted to terms of intimate companionship with nearly all of them—a volume which records the fact, and presents a brief glance at their characters, with memoranda of sayings and reflections as they came fresh from their lips, must awaken an unusual degree of interest. We remark generally of the volume, that it gives us no new insight into the character of the many distinguished men with whom he was associated in the course of his long life. This we regard as a recommendation; for it is always unpleasant to discover that the good opinion which we have cherished of individuals, is without a just foundation. But there are some exceptions, and we are sorry for it, not because we are compelled to change our opinion of men, but because such things have a place in the book. They call to mind some of the low slanders which Scott has perpetuated in his Life of Napoleon. We give an example or two. Mr. Rogers says that a gentleman living in the Temple assured him that he happened to be passing by Sir Joshua Reynolds' house in Leicester Square, when he saw a poor girl seated on the steps, and crying bitterly. He asked what was the matter, and she replied, that she was crying, "because the *one shilling* which she had received from Sir Joshua for sitting to him as a model, had proved to be a bad one, and he would not give her another." It is true, he remarks, "I can hardly believe what was told me long time ago;" but this

is no sufficient reason for giving place to a story so little, and so degrading. If a gentleman of Sir Joshua's position were capable of as mean a thing, he should take his place as the lowest man in the British kingdom. Mr. Rogers should not have soiled his lips by repeating it, unless it was to give it the flattest contradiction.

Again, with the highest regard for the genius of Sheridan, we have no respect for his morals. But if Lord Holland should think proper, in his short biographical sketch of him, to say that at the closing scene of his life, he showed a deep sense of devotion, we think it scarcely amiable to attempt to prove, upon the authority of another, that he died without hope, and in a state of great alarm.

With the further remark, that perhaps he is too fond of repeating anecdotes to show off Garrick's parsimony, we dismiss the point.

The book certainly contains many *bon mots*, but, as far as we remember, not one from our author. The most trifling incidents, when associated with greatness, assume importance; and we are favoured with many in connection with the distinguished personages of his time. As none but men of fame figure in its pages, there is but little which we do not read with interest. Fox's gaming and love of Greek, Pitt's love of the bottle, Sheridan's wit and reckless dissipation, Burke's jealousy and ill-temper, Erskine's humour and ridicule, and Byron's gallantries, are all abundantly illustrated. We are glad to see that Southey, with all his faults—but his greatest are those involved in his political inconsistency—was in his personal relations the most amiable of men; and we are not surprised to learn that Coleridge, the greatest talker of his day, frequently talked for hours without any one getting an idea from him, and that the moment anything assumed the shape of a duty, he felt himself incapable of discharging it.

To the literary man, perhaps the critical opinions, in respect to various authors in ancient and modern times, will carry the largest interest. These, of course, are not given *in extenso;* in most cases they are scarcely more than the *conclusions* of our author, though now and then they are strongly fortified and supported. We are inclined to judge favourably of our author's critical ability; and it appears to us that he thinks for himself. It may be that he is more skilful in detecting faults than in discovering beauties. But we may do injustice in this particular. We would not insinuate that our author is influenced in his judgment of the great and distinguished of earth, by the low feeling of envy; that he has added another proof of the saying of Tacitus, "*Nec minus periculum ex magna fama quam ex mala.*"

Notwithstanding our little complaint, we acquit him of this, as from all accounts he was a highly honourable and liberal gentleman. We avail ourselves of our privilege, as reviewers, of not assenting to every opinion which he expresses. We are glad that he writes thus of Pope: "People are so fond of *the obscure* in poetry, that they can perceive no *deep thinking* in that darling man Pope, because he always expresses himself with such admirable clearness." He has but followed the opinion of Macaulay, when he places Pope below Dryden; but he cannot, with that partizan author, degrade him to the level of a mere mechanical versifier, and with unsurpassed boldness, even for a critic, take the position that the general admiration of him only proves that the world is made up of fools. Shakspeare, Milton, Young, Gray, Cowper, and the more recent poets, all receive a passing notice, and we think that the Table-Talk does them general justice.

To us, one of the most readable portions of the book is the addition called "Porsoniana." Porson is entitled to attention, because of his being one of the great Greek scholars of England, and because he was a remarkable talker. This we had long known, but we were not aware until we looked through the book, that he has an equal claim to notice, because of his pre-ëminence in another and very different field of labour—that he was perhaps the lowest and most indecent drunkard in the United Kingdom. We have said that this part of the volume is very readable; but we would be sorry for any one to think that we can wade through it without having excited in our bosoms the deepest emotions of shame and sorrow. Is it not melancholy to think that one so gifted should have made himself such a beast! Is it not a wonder that learning so vast should not have imparted some elevation of feeling and sentiment! We are far from believing that this shocking vice of Porson is at all connected with his devotion to Greek. The truth is, that though learning has a refining and humanizing influence, though the maxim, "*Emollet mores, nec sinet esse feros*," cannot be called in question, something more is necessary to purify and establish man's moral nature, and to give to it the supremacy to which it is entitled. Porson's case is the case of every man who devotes himself to any department of intellectual exertion, and neglects entirely the whole duty of moral culture. It differs only in degree, and in the form of vicious indulgence. Man, unrestrained by any sense of moral obligation, uninfluenced by any sentiment of religion, must display very prominently the marks of his fallen and degraded nature. The present is only another example added to a long list; and, if the world will take warning, then, in spite of himself, it may be said that Porson lived for the benefit of mankind.

We repeat, in conclusion, that we wish that the table-talk of our great men who are gifted in this particular, could be fully reported. It is impossible to estimate the loss which the world has already sustained from the omission. Fuller, in his Worthies of England, speaks of the *wit-combats* between Shakspeare and "rare Ben Jonson," and he likens the former to an English man-of-war, and the latter to a Spanish great galleon. Who does not regret with D'Israeli, that these combats were not chronicled by some faithful Boswell of the age? and who does not believe that our literary history would have received an interesting accession? We think it was Dr. Johnson who said of Burke, that "his conversation was a stream of mind;" and though that great orator and philosophical statesman has left the richest legacy to posterity, we have to regret that there was no one to record his table-talk. A similar regret may be expressed in respect to Lord Bacon, Napoleon, Sir Walter Scott, Swift, Addison, Burns, Lord Byron, Niebuhr, Dr. Parr, and many others. The little that has come down to us in these cases only serves the purpose of deepening our sorrow; for it is fragmentary in its character, wanting for the most part in all connection, and almost as unintelligible as the Sibylline predictions, after the leaves had been driven by the winds from their proper places. And here we close, being reminded of the good rule laid down by Swift, and which we fear we have violated already, "of delivering nothing beyond what is to the purpose."

Western Africa: Its History, Condition, and Prospects. By Rev. J. Leighton Wilson, eighteen years a Missionary in Africa, and now one of the Secretaries of the Presbyterian Board of Foreign Missions. *With numerous engravings.* New York, Harper & Brothers, publishers, Franklin Square. 1856.—This book we have not yet had the opportunity of reading. As the author is a native of our own State, and the subject is one of uncommon interest to the people of the South, we shall take occasion, at an early day, to do justice to his work. For the present we announce its appearance.